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STOR

CLIMATOLOGY

—OF—

FLORIDA

—BY—

CHARLES J. KENWORTHY, M. D.,

JACKSONVILLE, FLA.,

PRESIDENT FLORIDA MEDICAL ASSOCIATION: PRESIDENT DUVAL COUNTY
MEDICAL ASSOCIATION: LATE SENIOR SURGEON BALLARAT
HOSPITAL AND PHYSICIAN TO BALLARAT BENEVO-
LENT ASYLUM. VICTORIA, AUSTRALIA.

*Reprint from Transactions Florida Medical Association,
Session of 1880.*

SAVANNAH, GA.

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CLIMATOLOGY OF FLORIDA

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B

PREFACE.

At a recent meeting of the Florida Medical Association, a paper was read on the Climatology of Florida, by Dr. C. J. Kenworthy, the President, which attracted very general attention. The information which it contains is not only valuable, but it is presented in so forcible a style that we were anxious to have it disseminated through a wider sphere than could be reached by its publication in the proceedings of a medical society. We therefore applied to Dr. Kenworthy for permission to republish it and distribute it among the thousands throughout the Northern and Western States who seek a warmer winter climate. This permission was kindly granted, and the author has also taken the opportunity to introduce some statistics that were not available at the time the paper was originally published.

To the annual visitor to Jacksonville, the name of Dr. Kenworthy will be sufficient to attract attention to anything from his pen. To those who do not know him, we will say that he adds to his high standing and long experience as a physician in New York city, in Australia and in Jacksonville, that thorough acquaintance with the forests and streams of Florida, which can only be acquired as an ardent votary of the rod and gun.

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CLIMATOLOGY OF FLORIDA.

BY CHARLES J. KENWORTHY, M. D., JACKSONVILLE, FLORIDA.

Mr. President and Gentlemen :

The President, Dr. Daniel, appointed me one of the essayists on this occasion, and I have selected as a subject for a few remarks, the Climatology of Florida, with United States and Continental comparisons. In treating this subject, I shall not aim at originality. In the language of Dr. Lente, of New York, "I make the attempt to enlighten the public, more especially the medical public, on the subject of the Climate of Florida, its adaptability as a health resort, and especially to remove certain unfounded ideas and prejudices which have been wide spread and deeply rooted in Northern communities. It is somewhat surprising that this should be the case with medical men, since positive information on the subject has always been accessible to them in the volumes of the Medical Statistics of the United States Army, the Army Medical Reports, and the Reports of the Adjutant General's Office."*

As evidence that such ignorance does prevail among educated medical men regarding climate, I quote from recent writers.

Dr. Denison remarks : "Of American climates of low elevation, we have the resorts of moist and sedative Florida."† If this gentleman had familiarized himself with the meteorology of Florida, he would have written : "Portions of Florida possess a dry and bracing climate, while some localities are more moist and sedative."

Dr. Napheys uses the following language : "Lower dry climates : Cannes, Mentone, Minnesota, Northern Georgia." "Lower damp climates—Florida : moist, changeable."‡

But the facts in the case, if reliable observations are to be accepted, are the opposite of what Dr. Napheys has asserted. The mean relative humidity of the localities referred to, for the cold months, is as follows :

* Constituents of Climate, Louisville Medical Journal, Aug., 1878.

† Rocky Mountain Health Resorts, by Charles Denison, A. M., M. D., Boston, 1880, p. 13.

‡ Modern Medical Therapeutics, by G. A. Napheys, M. D., Philadelphia, 1880, p. 193.

	November.	December.	January.	February.	March.	Mean for 5 months.	Mean for 5 Months.
	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.
Cannes and Mentone*....	71.8	74.2	72.0	70.7	73.3	72.4	
Augusta, Ga. †.....	71.8	72.6	73.0	64.7	62.8	68.9	
Breckenridge, Minn. †....	76.9	83.2	76.8	81.8	79.5	79.6	
Duluth, Minn. †.....	74.0	72.1	72.7	73.3	71.0	72.6	74.4
St. Paul, Minn. †.....	70.3	73.5	75.2	70.7	67.1	71.4	
Jacksonville, Fla. †.....	71.9	69.3	70.2	68.5	63.9	68.8	
Key West, Fla. †.....	77.1	78.7	78.9	77.2	72.2	76.8	72.7
Punta Rassa, Fla. †.....	72.7	73.2	74.2	73.7	69.9	72.7	

From the above data, it appears that the mean relative humidity of Cannes and Mentone, during the cold months, exceeds that of Jacksonville by nearly four per cent. Three stations in Minnesota have a mean of 74.4, and three in Florida a mean of 72.7, showing a per cent. of 1.6 in favor of Florida, and 5.6 per cent. in favor of Jacksonville over Minnesota.

Dr. Talbot Jones, of St. Paul, Minnesota, in an essay published in the New York Medical Journal, September, 1879, says: "The injurious effects of a moist atmosphere have been alluded to. By referring to the foregoing meteorological tables, it will be observed that the atmosphere of this State (Minnesota) is remarkably free from moisture. Hygrometric measurements show that the atmosphere of that State (Florida) is loaded with moisture."

Dr. Jones learnedly discusses "Hygrometric measurements" and "that State loaded with moisture," neglects to favor his readers with a *reliable "table"* referring to the humidity of Florida. Simple assertions, "as that State loaded with moisture," are unprofessional and unreliable.

If we take the entire year, for a period of five years, we will find but little difference in the mean relative humidity of Minnesota and Florida, as the following data, kindly furnished us by the Chief Signal Officer of the United States Army, will demonstrate:

*The Riveira, E. J. Sparks, M. D., London, 1879, p. 9.

†Signal Office Reports.

Years.	Minnesota.			Florida.		
	Brecken- ridge.	Duluth.	St. Paul.	Jacksonville.	Punta Rassa.	Key West.
	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.	pr ct.
1875.....	75.7	67.2	69.0	70.3	76.0	71.5
1876.....	67.7	68.2	69.1	67.2	73.9	76.1
1877.....	72.2	71.9	67.6	69.3	70.5	74.1
1878.....	76.2	71.5	67.7	68.7	72.4	74.5
1879.....	74.1	72.8	65.3	69.7	72.3	74.2
Mean for 5 years.....	73.2	70.3	67.7	69.0	73.0	74.1
Mean for five years for States.....	70.4			72.0		

From the above reliable "data," it will be found that the "atmosphere of Florida," although "loaded with moisture," contains, for the year, but 1 6-10 per cent. of moisture in excess of the "dry and desiccating" climate of Minnesota. During the five cold months, the mean relative humidity of Florida is less than that of Minnesota, and if we accept as conclusive, the "hygrometric measurements" and statements of Dr. Jones, Minnesota is not a suitable climatic resort for invalids during the winter months, for its relative mean humidity is greater than that of Florida, and more especially that of Jacksonville, which he specially condemns, on the ground that the atmosphere is "loaded with moisture." The mean relative humidity of St. Paul exceeds that of Jacksonville for the five cold months by 2.6 per cent.

Natural remedial agents, as climate and mineral waters, are attracting much attention, and reliable data regarding them should be placed before the profession and the public. In the language of Dr. Madden, Physician to St. Joseph's Hospital, Dublin, "Notwithstanding the number of recent works on the subject, there is a great deficiency of accurate information concerning even the most frequented health resorts. For the majority of such books, being written either by those residing in some sanitarium, the advantages of which are unconsciously exaggerated, or else being merely copied from their local advertisements, physicians at home are often misled, and the patients suffer the consequences. He who would attempt to supply the want of a comprehen-

sive and reliable guide to health resorts, should have personal experience in many climes and places, and himself be a physician."*

Difference of opinion exists in the profession regarding the effects of climate in the treatment of pulmonary and other diseases. Having been a member of the profession for over the third of a century, and having treated disease in private practice, as well as in several hospitals in the United States and in other lands, I have reason to believe that I am justified in expressing mine. My reason for settling in this State was my wife's health. She was a sufferer from phthisis, aggravated by a Northern climate. From my personal knowledge of the climatic advantages of this State, acquired by frequent visits, the first in 1844, I resolved upon settling in this city. As a result of change of climate, combined with rational medication, my wife was restored to health. In 1849, I was connected with Bellevue and Blackwell's Island Hospitals, New York, and contracted typhoid fever and cholera, followed by post mortem poisoning, and impaired health was the result. Tracing my family history, I found that my mother and fourteen of her brothers and sisters had died of phthisis. With impaired health, a laryngeal affection and a hereditary predisposition to tuberculosis, I had anything but a bright prospect before me. I looked to climate as my sheet anchor, and sailed for Australia; and a dry and warm climate improved my health, and to-day, as you can all perceive, I am in the enjoyment of as good health as usually falls to the lot of men of my age. After a permanent residence in this State of nearly six years, I am convinced of its healthfulness and the superiority of its climate, and deem myself warranted in expressing an opinion.

When invalids visit a Southern clime, they expect to find perpetual spring, and a climate made to order, "a wonderful paradise, and cry out like naughty children when their delusion is exploded." But a model climate does not exist, and no country is perfect in this respect. The physician's object should be to select for his patients the situation presenting the greatest advantages and the fewest objectionable features for the case under consideration. Annually, patients migrate to health resorts merely to find a grave, as a sequence of being sent from home when beyond the hope of cure, or because "a situation unfavorable to the particular malady has been selected, the laws of climate being ill un-

* Health Resorts—T. M. Madden, M. D., 1876, p. 7.

derstood, and in some measure, because it is difficult to persuade the sick that simple change from one climate to another country or section, is *only one of the means* by which they are to regain their health. For, although there can be no doubt that in change of air, physicians have an efficient remedial agent, yet it is certain that this remedy, like all others, is not of indiscriminate application, but must be prescribed with judgment."* "Of the large and annually increasing number of invalids, more especially consumptive patients, who are now sent abroad to winter in vaporous health resorts, probably as many are injured by a wrong or by too tardy a change of climate, as are saved by the timely and judicious use of this most valuable remedy. Patients, as a rule, will not abandon the comforts of home, or the avocations of their life, so long as they can cling to them, nor do physicians generally prescribe this step until other treatment has failed, and then, when perhaps the disease is far advanced, the patient may be induced to try a change of climate as a last resource."†

What climate shall be chosen for the invalid, is a matter of vital importance, and an error in this direction may be fatal. In some instances, neither physicians nor patients fully appreciate the necessity of deciding correctly and abiding by the decision. Invalids are often imprisoned in some secluded spot, which happens to be brought prominently before them or their physicians by a well written pamphlet, when a frequent change of air would have been beneficial to them, and when the moral effect of change of scene would have been more useful. On the other hand, those who require rest and quiet are allowed to rush wildly along and pass the greater part of their time in traveling. Others are consigned to a cold, damp and changeable climate, when they require the opposite. Some are sent to a tropical and moist climate, when they would be benefited by a moderate, dry and bracing one. Dr. Brinton, of Philadelphia, has aptly, yet bluntly, presented this subject, and we shall quote his language: "And here I must say with all due deference to the faculty, that the ignorance and carelessness of physicians in reference to this matter are, at most, reprehensible. Few of them make any distinction in cases. They send all consumptives to Minnesota, or to Texas, or to Cuba, or Florida, as if in every instance what is sauce for the goose is sauce for the gander. Thus it hap-

*Tanner's Practice of Medicine, p. 782.

† Health Resorts—Madden, p. 1.

pens, that the most eligible climates gain a bad reputation. When a medical man recommends a climate and yet is unable to tell its temperature, its moisture, its prevailing winds, its seasons, its local diseases, its articles of food, its accommodations for travelers—beware of him—he is a dangerous counselor. These facts the physician *must know* to advise wisely. Constitutions are differently affected by climate, and so are cases of the same disease. Some climates are sedative and relaxing; others tonic and bracing; some are moist and soothing; others dry and steeling. Some constitutions are nervous and irritable; others torpid and sluggish; some have plenty of latent force, which needs use; in others, the vital powers are naturally weak and must be carefully husbanded. In some cases, the symptoms are of inflammatory; in others, of an atonic character. In some, the secretions are scanty; in others, profuse. In some, considerations of diet are of great importance; in others, they do not enter. In some, the cough is importunate; in others, scarcely annoying, and a hundred other differences might be added. The question is a complicated one. It asks, for its solution, the utmost care of the physician. It almost demands the trained skill of a specialist.”*

In this age of rapid, cheap and comfortable traveling, the advantages to health of a change of climate should be considered by every person suffering from pulmonary or chronic disease, or broken health. It is a pleasant, and in many cases, a valuable remedy, if judiciously advised. “It would be difficult,” says Sir James Clark, the standard authority on climate, “to point out the chronic complaint, or even disordered state of health which is not benefited by a timely and judicious change of climate.” The diseases most likely to be benefited or cured by change of climate, are phthisis, laryngeal and bronchial affections, asthma, disorder of the digestive organs, chronic gout and rheumatism, affections of the kidneys, and broken health. A change of climate is beneficial to strumous children, is invaluable during convalescence from acute and chronic disease, and more especially is it one of the chief resources of restorative medicine.

A large majority of patients require a moderately warm, dry and bracing atmosphere, and the few demand a warm, sedative climate, where the atmosphere is not alone warm, but humid; and here steps in that knowledge that should be possessed by medical men who recommend climatic

* Florida and the South—D. G. Brinton, M. D., Philadelphia, 1869, p. 120.

change as a remedial agent. A moderately warm, dry and bracing air, with but few sudden and great atmospheric changes, is especially adapted to tuberculous disease in its early stages, catarrh, chronic bronchitis, chronic rheumatism, debilitating mucous discharges, renal diseases, dyspepsia, and some cases of asthma. A moist, warm and sedative climate is best adapted to many cases of advanced phthisis, dry asthma, chronic bronchitis, accompanied with great irritability of the pulmonary mucous membrane, and hard, dry cough. The particular locality, or what climate shall be chosen for a winter resort in any given case, is a matter of great importance, and should not be based on this or that letter or publication. Facts, figures, experience and favorable factors of climate should determine the question. An error in this direction may be fatal, and before a physician advises a patient to resort to any particular locality, he should carefully investigate each particular case, arrive at a correct diagnosis, and familiarize himself with the factors of each winter resort. Many an invalid who would be restored to comparative health, or at least survive for years, if he wintered in a temperate climate, is sent to a region where zero is frequently reached, where atmospheric changes are frequent and great, and where the patient is confined to heated rooms for days together, and debarred from taking exercise and enjoying the health-giving influence of sunlight and pure air. Others are sent to a warm and relaxing climate, when they require a temperate, dry and bracing one. Fashion and the influence of some leading physician have much to do with this.

In this active business country we find many persons who have been overworked and present a breach in the chain of those vital processes, whose continuity constitutes health—a condition popularly known as "broken health." The physician is unable to point out any special abnormal condition of any particular organ. The invalid cannot picture his symptoms, for there is no marked pain, and no particular function of life that is abnormal. The patient feels himself less capable than formerly of transacting the ordinary affairs of business; little things annoy him; a small amount of exercise tires him, his night's rest is insufficient, he suffers from distended bowels, he is uncomfortable after meals, symptoms of defective circulation are manifested, his knees and ankles become stiff, he has pains in the back and sides, the tongue is somewhat furred in the morning, the complexion loses its transparency, after a time slight deafness or imperfection of vision occurs toward night; in spite

of debility, the patient sometimes grows fat ; the nails become brittle ; the urine is generally pale and scanty, and, if examined microscopically, will frequently be found to contain numerous crystals of oxylate of lime. In some instances, the sufferer applies to a physician, and as the symptoms are mainly negative, he is treated for "biliousness," "nervousness," or "dyspepsia," three convenient cloaks for professional ignorance. Failing to obtain relief, the patient flies to quack medicines, and tries "bitters," "liver regulators," and "mandrake pills." The patient is simply suffering from "broken health," or, more correctly speaking, "general degenerative diathesis."

Unless judicious treatment is adopted, the heart becomes dilated, atheromatous change occurs in some of the arteries, cerebral throbbing, weakness and irregular action of the heart, atropic paralysis of a limb. Bright's disease, chronic bronchitis, chronic inflammation of the stomach or colon, or other serious affection becomes established. As local diseases, the sequence of broken health (general degenerative diathesis), proceed very slowly to an incurable stage, they give much encouragement to the medical man to hope for a cure, or at least the possibility of arresting diseased processes, and making the patient comfortable for years. The primary cause which seems to underlie the series of conditions and changes referred to, is weakness of the circulation, the result of overwork, sedentary occupations, anxiety of mind, debauchery, or laziness. To relieve such cases, climatic change, suitable exercise, fresh air, sunshine, absence from the harassing strain of business, proper food and rational medication are demanded.

If such a course is adopted, in a limited period, the pulse will beat regularly and stronger ; the heart impulse will be felt by the hand ; instead of prostration after exercise, there will be a healthy weariness ; cold sweats will cease, swelling of the extremities will disappear, digestion will be properly performed, and in time the patient will be restored to health or comparative comfort. And in Florida, the worn-out man of business, suffering from "broken health," will find the necessary relaxation from "brain fag," opportunities to take out-door exercise, plenty of sunshine, pure and bracing air, and other necessary adjuncts to relieve a condition affecting the many. In this connection, I cannot refrain from referring to what I consider an important fact. From my observations in the United States and in foreign lands, and in hospital as well as private practice, I have been forced to notice the infrequency of chronic disease and broken health

in Florida. In my visits to various portions of this State, I have met with many persons, old and young, who live from year to year on improper food, and who drink water from shallow holes, near marshes, and yet, singular to say (although such persons are somewhat anaemic), they do not present any manifest diseased condition. In cities, towns, villages, and rural districts, where residents are supplied with proper food, and drink pure water, a case of chronic disease or broken health is seldom met with. And if we have a climate in which these conditions rarely occur, are we not justified in concluding that it will exert a powerful influence in restoring the invalid to health? As most of you are aware, I have, at various times, visited many portions of the State, and have been surprised to meet so many persons who have settled in it as invalids and have been restored to health or comparative comfort by the climate—a large proportion of them having been sufferers from pulmonary diseases. And what surprised me most, was the fact that none of their offspring manifested any constitutional predisposition to pulmonary disease. Independent of uterine diseases among females, so common in every civilized country, and constitutional syphilis among colored people, I will ask you if your experience will not bear out my statement, and if your practice among residents is not almost exclusively confined to acute and not chronic disease and broken health? If this is a fact, it would appear that the climate is peculiarly adapted to the cure of such conditions, and have we not a potent agent to use, and if used aright, to benefit suffering humanity?

Many persons residing in the Northern and Western States suffer from what is known as winter cough—a cough limited to the winter season, or much aggravated by it. This troublesome symptom may be the result of bronchitis emphysema, naso-pulmonary catarrh, follicular disease of the pharynx, chronic thickening of the pulmonary mucous membrane, or other pathological condition. The investigations of Drs. Dobel, Green, C. T. Williams, and Pollock, of London, and others, establish the fact that pulmonary consumption frequently results from one of the above conditions. Dr. C. T. Williams, Physician to the Brompton Hospital for Consumption, London, remarks: "A catarrh creeps down the bronchial mucous membrane and eventually reaches some of the alveoli. Here rapid proliferation of epithelium (lymphatic endothelium) occurs, which is the more irritated and prone to multiply, owing to the inhalation of some of the bronchial secretion. The alveoli become

choked and stuffed with epithelium, and the vessels may be emptied through pressure; ulceration may follow, and the whole mass may liquify, caseate and become expectorated.*

From the rapid advances made in pulmonary pathology within the last decade, it is self-evident that something more is required of the medical man than the relief of cough or the administration of cod-liver oil and expectorants—that he should possess an accurate and exhaustive knowledge of pulmonary diseases, and treat diseased conditions and not symptoms. It is time that physicians abandoned the older doctrines of the specificity of tubercle and phthisis, which undoubtedly exercised an unfavorable influence upon treatment. Within a recent period, owing to accurate investigations, there has been a gradually increasing tendency to regard phthisis as an inflammatory affection, and there has, consequently, been a corresponding tendency to attempt, by treatment, to prevent the occurrence and control the influence of bronchial and pulmonary inflammation. "We do not even yet," remarks Dr. Green, Physician to Charing Cross Hospital, "sufficiently recognize the fact that the development of phthisis is determined and the progress of the disease influenced by the ordinary causes of inflammation; and the results of pathological investigation indicate, I think, the advisability of directing our treatment still more closely with the object of preventing and controlling all inflammatory processes in the lungs. Of all the teachings of our pathology, this is undoubtedly, by far, the most important."† According to Hirsch, "This much is firmly established, that catarrhal affections of the respiratory organs, other things being equal, are the more frequent the farther we proceed from the tropics towards higher latitudes, and that the maximum of their frequency in different portions of the frigid and temperate zones, is found in general, where *frequent, sudden* and severe variations of temperature occur, in addition to the prevalence of a moist and cold climate."‡ When treating of bronchial catarrh, Dr. Riegel, Medical Director of the City Hospital of Cologne, says: "It is not to be denied that there is a class of individuals who, despite all precautionary measures, always become affected with catarrh after the slightest exposure and at every sudden change of weather. For such persons,

* Clinical Lectures on Phthisis, delivered at Brompton Hospital, London. Brit. and For. Medical Journal, March, 1878.

† Green on Consumption, London, 1878, p. 99.

‡ Handb. Hist. Geograp. Path. Erlangen, 1862.

the choice of a tolerably mild residence, of equable temperature, often affords the only certain prophylactic. For persons who suffer from bronchial catarrh every winter, nothing can be recommended more urgently than resort to a milder climate for several winters. Many localities are suitable for this purpose, and in general, those are to be recommended which have been found suitable as winter residences for consumptives.*

When any condition of the air passages exists calculated to induce phthisis, or when a marked predisposition is present, climatic change is worthy of consideration. Dr. Dobel, consulting physician to the Royal Hospital for Diseases of the Chest, London, states that, "In 72 per cent. of cases of cough he had analyzed, he found the disease had been aggravated by fresh colds, caught either by, 1, sudden changes of temperature; 2, fogs and damp air; 3, draughts of cold air; 4, getting wet; 5, wet feet."† At p. 177, he remarks: "The tuberculous diathesis adds frightfully to the perils of all catarrhal affections and will claim our attention on this account, rather than a cause of winter cough. When the constitutional tendency to consumption is at all marked, we shall have to be constantly on our guard against the occurrence of local congestions and inflammatory attacks of catarrh, for *whatever increases the vascularity of an internal organ* in the tuberculous diathesis, involves the risk of tubercularization of the affected part. And again, when we discover physical signs of that lung-disintegration, which is one of the serious effects of repeated and neglected catarrhal attacks, grave as its importance must be allowed to be under the most favorable diathetic conditions, the co-existence of a tuberculous predisposition at once invests it with all the horrors of advancing consumption of the lungs, and will necessitate a change of climate entirely ruled by this consideration. To prevent the winter cough from running into consumption will be the first consideration, in the climate as well as in every other form of our treatment of the case." When referring to the influence of cyclical conditions as productive of phthisis, Dr. Smith, Physician to the Hospital for Diseases of the Chest, at Brompton, remarks: "The evils of the season [winter] will, however, be the tendency to internal congestion and inflammation, the *increase* of cough from irritation of pharynx and air passages, induced by the inhalation of cold air; the tendency to haemoptysis

*Ziemsen's Encyclopedia of Prac. Med., pp. 410, 413.

†Dobel on Cough and Consumption, 1877, p. 143.

from increased cough, irritability of the mucous membrane and congestion of the lungs, and deficiency of temperature from the cold. If a patient be restricted to an artificially heated atmosphere, he will have the evils of dryness, stillness and impurity of the air. In selecting a foreign winter and early spring residence for the class of patients under consideration, we must seek for the conditions which will enable the patient to spend his time in the open air, and such are the temperature, dryness of the air, and the violence of the winds. Speaking generally, those climates will be the most suitable in which the air is *not moist, the temperature never very high nor low, but uniformly sustained.*" *

There is a period in man's existence when no actual disease is present—when the body gradually yields to the advances of old age. With the majority, this occurs between the fiftieth and sixty-fifth years, and it has long been noticed that the winter months are especially dangerous to persons advanced in years. The following passage from the *London Times and Gazette* for February 22d, 1879, illustrates the action of a severe winter in causing mortality: "The quarterly return of the Register General for the period ending December 31st, last, affords convincing proof of the fatal effects of the late severe winter upon all ages of the community. The largest proportional excess in mortality occurred among persons aged upwards of sixty years. The death rate at these ages was equal to 83.7 per 1,000, and was considerably higher than in any corresponding quarter since 1870. The death rate among persons aged upwards of sixty years, in the twenty large towns, during the December quarter, averaged 89.6 per 1,000. Taking the mortality of the mild autumn quarter of 1877, as a standard of comparison, the excess of mortality last quarter, due to the low temperature, may be stated in the following manner: Among persons of all ages, the excess was equal to 12.4 per cent.; it was 8.8 per cent. greater among infants under one year of age; 7.8 among persons aged between one and sixty years, and so great as 24.7 among persons aged upwards of sixty years."

Morbidity, that is to say, the probability of becoming sick, is marked during the great climacteric, and the diseases which occur during this period are of a severe and fatal character. The table of Quetelet illustrates the liability to disease in those advanced in years:

*Smith on Consumption, pp. 200, 203.

AGE.	DEATHS IN 10,000	PROBABLE DURATION OF LIFE. YEARS.	PROBABILITY OF DEATH.
30	61	34.78	0.0106
45	69	27.16	0.0135
50	80	19.73	0.0182
60	114	12.83	0.0330*

Residents of cold and changeable climates are subjected to great and sudden atmospheric changes, deprived of sunlight, fresh air, sufficient exercise, and are daily poisoned by heaters, the elements resulting from the combustion of coal gas and impure air from sewers. It is an undisputed fact that the winter months in cold, and more particularly changeable climates, are especially dangerous to persons between fifty and seventy years of age. The old Romans had this pregnant expression: "*Inimicus senibus hiems*"—winter the foe of the aged. In discussing the action of cold on the system, Dr. Osgood, of Boston, no mean authority, remarks: "But while the internal heat is economized, the heart and blood vessels are exposed to serious dangers which are due to high pressure. If the heart be weak, the sudden call upon it for more vigorous action may paralyze it; the danger especially applies to the aged, to whom, besides, the blood vessels are liable to be weak and brittle. When, therefore, cold weather comes on abruptly, sudden deaths among the fragile and aged are common, the cause being apoplexy, or arrest of the heart, perhaps congestion of the lungs. Another evil effect of sudden cold, or even chill, is checking perspiration. The result may be pneumonia, pleurisy, bronchitis, rheumatism or kidney trouble, with their train of dangerous and too often mortal after-effects." †

In treating of temperature as a cause of disease, Wagner, p. 60, remarks: "As regards the nature of disease, we can say with accuracy that the respiratory organs suffer more in winter and spring than in summer." The able writer on Consumption and Climate, Dr. Bennett, states: "According to the Register General's Reports of the British Isles, and the mortality register all over the world, the healthiest winters are those that have the highest temperatures. The years of greatest mortality are those in which extremes of cold in the winter are reached. In temperate climates the deadliest seasons are those of greatest cold. Extreme heat

* Wagner's Pathology, 1877, p. 45.

† Winter and its Dangers, H. Osgood, M. D., 1879, pp. 13, 14.

and extreme cold not only interfere with the equilibrium of functional activity, throwing a strain on some of the vital functions of animal life to their serious risk and danger, but necessitates modes of existence detrimental to the healthy performance of these functions.* Thus in very cold climates such as St. Moritz, in the Engadine, and St. Paul, in Minnesota, United States, which have been recommended of late for phthisis in winter as well as summer, invalids have to live in winter for by far the greater part of the twenty-four hours in badly ventilated rooms. When they go out they have to undergo the transition to a temperature thirty or forty, or even more degrees, less than that in which they live during the greater part of the twenty-four hours. Such confinement, such transitions, even much less marked ones, constantly give rise in all Northern countries in winter, to inflammatory affections of the mucous membranes of the air passages, to pneumonia and to pleurisy, and that in the healthiest members of the community. If it is so with the healthy, how can we expect those to resist such influences who are already diseased, who have morbid deposits, inflammatory, catarrhal, scrofulous, tubercular in their lungs, softened or not? How can those who have already local pneumonias, local pleurisies, expect to withstand their pernicious influences? Moreover, they do not live in the pure air they ascended to reach, but in an atmosphere vitiated by stove heating, by their own respiration, and by that of their companions."*

Dr. Day, an English physician, calculating from about 55,000 persons over 60 years of age, determined that the deaths in January were nearly twice as great as in July. This statement confirms the opinion of another distinguished statistician, "That waves of heat are waves of life, and waves of cold are waves of death." With these and a hundred similar warnings before us, remarks Dr. Brinton, "we are safe in saying that in many cases, entire relaxation from business, and two or three winters in a warm climate, about the age of sixty will add years to life." The importance of escaping the rigors and dangers of a Northern climate is being appreciated by the aged as is evidenced by the thousands of persons who annually visit Florida. In my winter visits to this State from 1865 to 1875, I found the majority of the visitors to be invalids, tourists and sportsmen, but my observations during the past and several preceding win-

*Treatise on Pulmonary Consumption, J. H. Bennett, M. D., 1879, p. 70.

ters establish the fact that the majority who visit this State are advanced in years and migrate with the birds to a land where

"The gentle wind, sweet and passionate wooer,
Kisses the blushing leaf."

Climacteric delay is obviously the concatenated phenomena arising from that exhaustion of the vital energies which takes place at a more or less advanced age, in consequence of the cares, turmoils and physical exertions dependent on existing states of society, particularly among the middle classes. The exhaustion manifesting itself especially in the functions which are most intimately related to and concerned in the perpetuation of the vital endowment of the frame. As this decay of the vital energies—this breaking up of the constitution, as it is commonly found, is necessarily experienced by the whole frame, it is obvious that it may not only be hastened by whatever is either mentally or corporeally injurious, as well as specific forms of disease, but that it will be more or less remarkably evinced in those organs which have especially suffered during previous attacks of disease. Hence the complicated states in which senile decay is usually observed, and the rapid progress and unfavorable issue of such maladies appearing about the climacteric period. To obviate the occurrence of disease at this period of life, a change from a cold, moist and changeable climate, to a dry and temperate one, will prove advantageous. Dr. Madden remarks that "in some of the diseases peculiar to advanced age, change of climate will be the best adjuvant to husband out life's taper to its close."

The word climate in its common signification indicates a region bounded by certain arbitrary lines, but in medicine it possesses a wider meaning. The effect of climate upon the human system is the sum of the influences which are connected with many factors. The climate of any locality, professionally speaking, depends upon its temperature, atmospheric vicissitudes, prevailing winds, humidity, its elevation above the sea level, its proximity to the ocean or oceanic currents, its contiguity to mountains, lakes, rivers, arid areas, soil, drainage, vegetable productions, malaria, general sanitation and other factors, which we shall briefly consider.

In his investigations, Dr. Jones overlooked Russia, where the "Ice King is" in all his majesty and strength, or else he would have referred to the following figures: In Russia,

from 1857 to 1859, the general mortality from phthisis was 164 in the 1,000. In the *most northern provinces*, that of Archangel, the mortality was 190 in 1,000, and in Wologda, 204 per 1,000.* "In St. Petersburg it is very common."†

At p. 274, Dr. Jones asserts that "*North Sweden and Norway are likewise almost exempt from a disease [phthisis], which carries off one-tenth of the population of the tropics.*" According to the eminent authority, Dr. Lombard,‡ the mortality from phthisis in the northern towns of Sweden is 147 in a thousand; in those in the center, 125, and in those in the south, 131. Norway presents the same high mortality from phthisis, 130 in 1,000. In Denmark the mortality from phthisis is 122 per 1,000, nearly the same as in London, where it is 121. At p. 274, Dr. Jones states that phthisis "*carries off one-tenth of the population in the tropics.*" If we are to accept this statement as fact and the figures of the eminent Dr. Lombard as reliable, Dr. Jones "is out of his latitude."§

In the language of Dr. Copeland: "As to the climate of different countries, and as to the influence of situation and locality, either in favoring or in preventing the prevalence of phthisis, our knowledge is altogether imperfect. Much that has been asserted on this subject is more or less inaccurate, the inaccuracy being often in proportion to the dogmatism with which the matter is treated."

Temperature is an important factor in climate, and a very large proportion of the profession, who have made a special study of pulmonary diseases, advocate a dry, sunny and temperate climate for their successful treatment. In view of the great dissemination of phthisis throughout all zones, and the marked percentage of mortality ("nearly two-sevenths of all deaths resulting from this disease"), it is exceedingly important that correct opinions should prevail with regard to its treatment. The importance of laboring to check this disease and limit its mortality, is an urgent

* Bennett, Pulmonary Consumption, pp. 116 117.

† Hogner's Genl. Pathology, New York, 1877, p. 72.

‡ Traite de Climatologia, vol. 2, p. 110.

§ At p. 274, Dr. Jones remarks, when discussing the infrequency of consumption in cold climates: "That it has lately been shown that the farther we progress north, the greater immunity the inhabitants enjoy from consumption." The writer uses the word "lately," and all his evidence can be found in Copeland's Medical Dictionary, published in 1858. In fact, in many cases the language is copied. If the gentlemen had made quotations from Lombard and Bennett whose works have been "lately" published, his position would have been untenable.

necessity, more especially when there is a growing demand for more attention to the preservation of health, and when the conviction is gaining ground that this is an important function of medical science.

The modern professional view that a *temperate, dry and sunny clime* is best adapted to the treatment of a large proportion of pulmonary diseases, is one of the most valuable contributions that modern science has made in the treatment of such diseases. It may be stated as a general rule, that pulmonary diseases are more frequent in cold and changeable climates than in those that are moderately warm and dry. The climatological distribution of pulmonary diseases in the United States, is illustrated by the following table from Blodgett's Climatology :

	Deaths by phthisis.	Per cent. of entire mor- tality.	Deaths by disease of re- spiratory or- gans.	Per cent. of entire mor- tality.
Maine	1,702	22.4	2,074	27.35
New Hampshire.....	924	21.84	1,092	25.82
Vermont.....	751	24.09	884	28.24
Massachusetts.....	3,426	17.65	4,418	22.77
Connecticut.....	968	16.75	1,280	22.31
Rhode Island.....	470	20.92	572	25.52
New York	7,890	17.04	10,846	23.42
New Jersey.....	915	14.15	1,176	18.19
Pennsylvania.....	3,520	12.33	4,821	16.80
Delaware	118	9.76	185	15.30
Maryland	1,101	11.44	1,679	17.34
Virginia	1,616	8.43	3,540	18.56
North Carolina.....	562	5.83	1,688	16.60
South Carolina.....	269	3.34	1,313	16.69
Georgia.....	279	2.80	1,334	13.44
Florida	43	4.61	108	11.60

The above figures do not properly represent the mortality from phthisis originating in this State, for they do not indicate the number of deaths occurring among invalids who came to the State in the last and incurable stages of phthisis. "From the United States census tables and other statistics, the fact is developed that phthisis in the United States progressively decreases from Maine to Florida. Dr. Lawson, Surgeon-General United States Army, sets down the mortality from tubercular consumption as three times greater in the Northern than in the Southern States."* To illus-

* Aitkin's Practice of Medicine, Vol. 2, p. 788.

trate the frequency of phthisis in the United States Army, at a few stations, from 1840, to 1859, inclusive, we will quote the following figures :

Coast of New England.....	4.6
Harbor of New York.....	5.6
Great Lakes.....	4.5
Middle Interior, West.....	3.7
South Atlantic.....	7.9
South Interior, East.....	6.9
California, Southern.....	4.9
California, Northern.....	5.4
Atlantic Coast of Florida.....	2.7

To illustrate the frequency of pulmonary diseases in the United States Army, at a few stations, we shall quote from Dr. Brinton's work, p. 128. The relative frequency of phthisis, bronchitis, pneumonia and pleurisy (omitting fractions) was as follows. One man came under the surgeon's care, for one or other of these diseases :

In Arkansas, one in.....	16
In Texas, southern frontier, one in.....	16
In Baton Rouge, La., one in.....	17
In St. Paul, Minn., one in.....	19
In Florida, eastern coast, one in.....	37

To illustrate one important factor of climate—temperature—I shall quote from the official records of the Signal Service of the United States Army for the months of November, December, January, February and March, regarding the temperature at certain points, recommended as health resorts. We shall confine ourselves to a great extent to official records, as far as the United States are concerned, for in some instances private observers are not educationally qualified ; in some cases it is questionable if their instruments are reliable, and it is possible that, at some points, instruments may be placed in positions where favorable conditions can be secured :

	Years.	November.	December.	January.	February.	March.	Mean for 5 months.	
Cannes, Mediterranean.....	3	54.6°	48.8°	48.5°	49.4°	52.8°	50.8°	†
Nice, Mediterranean.....	3	53.8	48.5	47.0	48.4	51.8	49.9	†
Mentone, Mediterranean.....	3	55.2	50.5	48.8	50.4	53.4	51.6	†
Nervi, Mediterranean.....	3	55.2	47.8	46.2	47.8	49.0	49.2	†
Nassau, N. P.....	1	75.7	72.3	72.2	71.9	74.4	73.3	†
Atlantic City, N. J.....	4	45.3	35.3	32.2	33.2	37.1	36.6	§
Augusta, Northern Ga.....	4	54.9	47.6	48.1	49.6	57.	51.4	§
Breckenridge, Minn.....	5	17.3	13.4	6.8	13.1	18.9	13.9	†
Duluth, Minn.....	4	28.8	21.6	12.4	19.2	25.7	21.5	†
St. Paul, Minn.....	5	28.3	20.0	13.0	19.4	27.6	21.7	§
Key West, Fla.....	5	74.5	70.5	70.5	71.7	73.8	72.2	§
Punta Rassa, Fla....	5	69.7	64.8	65.5	65.9	69.8	67.1	§
Jacksonville, Fla....	4	62.1	55.8	56.2	56.9	62.7	58.7	§
Aikin, S. C.....	5	54.7	46.7	46.4	47.5	56.4	50.3	§
Los Angeles, Cal....	1	62.1	55.3	54.1	54.6	55.8	56.3	§

An examination of the Signal Service Reports shows that in St. Paul, for the five cold months for five years, that the minimum temperature was 10 deg. and below on an average of fifty-seven days in each year. In a climate with such a low range of temperature for weeks together, patients suffering from pulmonary diseases cannot take exercise in the open air, but must of necessity remain in artificially-heated rooms. Farther comment on such climatic treatment of pulmonary invalids is unnecessary. Why send a patient from a place like Boston, Massachusetts, with a cold and dry winter climate, to Minnesota, with its almost arctic cold, sudden and great vacillations of temperature and a higher mean relative humidity? Instead of sending patients to hyperborean regions, it appears to us more rational to consign them to localities possessing a moderate temperature, where there is sunshine, and where fresh air, uncontaminated by human exhalations or other noxious effluvia, may be breathed, and where the quiet of Nature, the blooming of flowers, the singing of birds, the babbling of brooks, will often produce marvelous improvement of health.

† The Riviera, by E. T. Sparks, M. D.

‡ Compiled from Records of Mil. Hosp., by G. A. Osborn, Esq., for Author.

§ Signal Service Reports.

|| W. H. Geddings, M. D., Aiken, S. C.

It is a remarkable fact that professional men refer a large proportion of cases of pulmonary diseases they are called to treat during the cold months, to "cold" and "vacillations of temperature." Yet in the face of these daily expressed opinions, some few consign their patients suffering from these diseases to moist, cold and changeable climates for their relief or cure. Dr. James H. Bennett, p. 70, says: "The seasons of least mortality in the year, are those in which the temperature is neither extreme in one sense nor in the other, conversely, the seasons of greatest mortality are those in which extremes of cold in the winter and heat in the summer are reached. In temperate climates the deadliest seasons are those of greatest cold." Dr. G. Wilson (Health, and Healthy Homes, Philadelphia, 1880,) remarks, "Foremost among the uncontrollable causes of disease, are atmospheric changes dependent upon seasonal variations. For example, a sudden fall of temperature is sure to be followed by a long train of ailments, such as catarrh, influenza, bronchitis, and other forms of lung diseases."

Until a recent period a warm, moist and sedative climate was advocated for the treatment of phthisis, but since medical doctrines have changed, and the leading minds in the profession advocate the importance of a dry, temperate and bracing climate—since "Vitalistic and sthenic views of treatment prevail, and are found to give infinitely more satisfactory results than those that followed antiphlogistic treatment, the medical mind in America and in Europe, looks about for a cold climate. As usual, the pendulum has a tendency to the other extreme—to go from a tropical climate to the ice-covered summits of the Swiss mountains, to the frozen plains of Northern America. Many minds can never constitutionally follow the golden adage, *Medio tutissimus ibis*. They cannot remain in the middle of the road, they must pass from one extreme to the other."—Bennett.

Dr. Jones, of St. Paul, Minnesota, in his "Plea for Cold Climates in the Treatment of Pulmonary Consumption," uses the following language: "When we begin to enquire into the character and comparative merits of climate, we are at once struck with the fallacy of the doctrine which has obtained for generations, that the disease is more frequent in cold than in warm climates. *Just the reverse of this is true*. From an extensive series of data, it has lately been shown that the farther we progress North, the greater the immunity the inhabitants enjoy from consumption. It is well known that far up in the North where the Ice King is,

consumption is either extremely rare or altogether unknown. In the bleakest, coldest and the most exposed portions of the globe, where winter well-nigh continuously exists, and where sudden and severe changes of the atmosphere hold to a maximum, consumption is very infrequent. Indeed, so true is this, that we are forced to the conclusion that extreme cold is inimical to the production of consumption." To prove that this statement does not apply to the United States, we will quote from Aitkin's Practice of Medicine, vol. 2, p. 788: "From the United States census tables and other statistics, the fact is developed that phthisis in the United States gradually decreases from North to South. It originates far less commonly in the southern than in the northern regions; it gradually but perceptibly diminishes from Maine to Florida. Dr. Lawson [Surgeon-General United States Army] sets down the mortality from tubercular consumption as three times greater in the Northern than in the Southern States."

At page 284, Dr. Jones lays down the following proposition: "The most unfavorable climate possible for the consumptive patient is one of uniform high temperature." If these views regarding a "high temperature" and the "Ice King" are correct, Dr. Jones should recommend patients to avoid Minnesota during the warm months, and seek a region where the "Ice King is."

Under existing circumstances it is difficult, if not impossible, to arrive at any positive opinion regarding the prevalence of phthisis in any zone or altitude; even at the best, an approximation to the truth is all we can expect. In forming an opinion of the adaptability of any climate for the treatment of phthisis we should consider climatic factors, weigh well the mortality from phthisis, ascertain the effects of climate upon invalids who have resided there for years, and obtain the views of experienced and intelligent physicians resident in such climate.

In advocating the advantages of this or that climate or altitude, writers overlook the influence of food, the immunity from phthisis in some races; the prevalence of phthisis in the Caucasian race, and the crosses of this race with the negro and other dark races. The length of time the locality has been settled, the crowding of persons in towns and cities, habits and occupations of residents, and numerous other important points in the etiology of phthisis. Dr. Rush remarks (Med. Enquiries, vol. 1, p. 37), that "pulmonary consumption is unknown among the Indians in North America." As the Indians inhabited each State in the

Union, we might use it as an argument to prove that high or low altitudes are favorable for the climatic cure of phthisis. Such a line of argument would appear ridiculous ; yet writers of to-day use such arguments to establish their theories. In support of this theory that phthisis is more prevalent in warm than cold climates, Dr. Jones makes the following statement : "In Nova Scotia and New Brunswick, where the temperature is very low, the disease is less frequent than in Jamaica," and cites the British army reports as authority. To illustrate how much dependence there is to be placed in this statement, we shall quote from the tables of Dr. G. T. Balfour, compiled from the Reports of the British War Office, with regard to the admissions and deaths from tubercular disease among British troops per one thousand mean strength at a few points :

NOVA SCOTIA, ETC.		JAMAICA.		GREAT BRIT- AIN.		MADRAS.		BOMBAY.	
Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
14.	2.29	5.	1.96	19.	3.48	16.	1.88	9	1.53

One argument advanced by a few physicians in favor of cold climates as a winter resort for invalids, is the fact that the respiratory process is more perfectly performed in cold than in a warm climate. This doctrine may apply to persons who are able to resist the influences of cold ; but the question arises, how many invalids who are suffering from pulmonary disease can safely use this climatic remedy ? A large majority are injuriously affected by a low temperature and great and sudden thermal changes, and remain indoors in heated rooms, and take no exercise in the open air, unless the thermometer rises to 40, or above, and the very object for which they visit a "cold and invigorating climate" is defeated. Exercise increases respiration, appetite, innervation and assimilation, and it can only be safely and regularly taken where there is a dry atmosphere and a favorable thermometric range. If the temperature is not too high or too low, patients can enjoy sunlight and fresh air, and take exercise out of doors without incurring the risk of inducing pneumonia, pleurisy or bronchitis. Opportunity to take daily exercise in the open air is a matter of vital importance to the invalid, and a climate should be

selected where this can be accomplished. To illustrate the influence of exercise in increasing the respiratory process, we shall quote from the excellent work on phthisis by Dr. Smith, of the Brompton Consumption Hospital, London. Dr. Smith's data are based on a large number of experiments upon the various kinds of exertion over the quantity of air expired, and from these we learn that taking the quantity of air inspired when lying and at rest as unity, the effect of ordinary exertion is as follows :

"Table showing the influence of exertion over the quantity of air inspired :

1. Lying.....	1.0
2. Sitting.....	1.18
3. Standing.....	1.33
4. Singing and reading aloud.....	1.26
5. Walking at one mile per hour.....	1.9
6. Walking at two miles per hour.....	2.76
7. Walking at three miles per hour.....	3.22
8. Walking at four miles per hour.....	5.0
9. Horse exercise, walking.....	2.2
10. Cantering.....	3.16
11. Trotting.....	4.05"

The effect of the respiratory power is modified by the degree of the purity of the air. It has been abundantly proved by de Saussure, Falkland and Welsh, that the composition of the air at the highest attainable altitudes is identically the same with that found at the level of the low lands, but at lower levels there may be great diversity in the constitution of the air as the result of defective sanitation, or in badly ventilated apartments. In this connection we cannot refrain from referring to the published statements regarding the purity of the air of elevated sections. Such statements are merely calculated to mislead those who are ignorant of the facts in the case, for pure air can be obtained in temperate climates without ascending mountains. It has been asserted that at high elevations the respirations are quickened, and, as a consequence, the patient is benefited. It appears proved by the researches of M. Coindet, a French physician, in his Medical Letters on Mexico, that although the respirations are increased in number, less air is inhaled than in lower localities. M. Jourdanet, who practiced many years in Mexico, at an elevation of seven thousand feet, claims that it is detrimental to human health and life, bringing on amaemia, which he calls *Barometrical anoxyaemia*, the result of deficient oxygenation of the blood. M. Lombard, asserts that plethora and the inflammatory diathesis characterizes the pathology of medium alpine climates,

but recognizes anaemia in the higher regions from this cause.

Elevated localities have been recommended for phthisical cases, and the recommenders forget that the air is rarefied, and that the amount of oxygen inhaled is much less than at a lower level. One of the strongest advocates of elevated districts, Dr. Denison, of Denver, Colorado, says: "Then, aside from the susceptibility of the nervous system, the character and acuteness of the diseased conditions of the lungs, defective vital force, etc., the acclimatization is rapid and easy, or prolonged and uncertain, nearly in proportion to the amount of lung tissue involved—advanced age being usually considered an unfavorably modifier. This general statement makes the accimatization of individuals an accomplished fact after a residence of from two weeks to two, or even four months, at the end of which period a somewhat accurate estimate can be made of the effect to be expected from a prolonged residence in this elevated region."* From Dr. Denison's statements, it is evident that persons advanced in years, or whose lungs are seriously diseased, should not visit Colorado. If it requires from "two weeks to four months" before a patient can become acclimated at our Western mountain resorts, it appears like a dangerous proceeding to make the experiment. Two weeks, or four months, are all-important periods of time in the existence of persons suffering from pulmonary diseases. Such cases are not suitable ones for experiments in acclimatization; and patients should select a climate where such experiments are unnecessary.

In cold climates range of temperature, cold winds, snow, and bad walking interfere with the taking of suitable exercise, and innervation, nutrition and assimilation are interfered with to the injury of the invalid. A high range of the thermometer is objectionable in the treatment of pulmonary diseases, for in hot climates the number of respiration are diminished. The effect of the lessened number of respirations is to reduce the total respiratory action considerably. Rathry has shown that the average amount is in the temperate zone (temp. 54 deg. Fahr.) 239.91 cubic inches per minute, while in the tropics (82 deg. Fahr.) only 195.69 cubic inches were inspired, so that there is a difference of 38.65 cubic feet in 24 hours, or 18.43 per cent. in favor of a temperate climate. If 10 ounces of carbon are

* Rocky Mountain Health Resorts, C. Denison, A. M., M. D., Boston, 1880, p. 147.

expired in the temperate zone, only 8.157 ounces would be expired in the tropics. A high thermal range, more especially if associated with a moist atmosphere, interferes with physical exertion, and in this respect is injurious. Hence a climate like that of Nassau or Cuba is objectionable as a resort for pulmonary invalids, as the high range of temperature interferes with the respiratory function and the taking of exercise. From personal observation and a careful study of the subject in all its bearings, we feel assured that the most suitable winter resort for the invalid, as a general rule, is one possessing a moderate temperature, plenty of sunshine, a dry atmosphere, with opportunities to take daily exercise and inhale the pure air of Heaven. When referring to the action of hot and cold climates on consumptive patients, Dr. Fuller, Physician to St. George's Hospital, London, remarks: "Their organization is delicate, their constitutions weak, their extremities are often cold, they are pinched and prostrated by a low temperature, and they are susceptible of damp. To such persons a warm atmosphere is invigorating in the highest degree, and without its aid, medicine and the most carefully regulated diet are of little avail."* When referring to the evils of the winter season, Dr. Smith remarks: "The evils of the season will, however, be the tendency to internal congestions and inflammation, the increase of cough from the irritation of the pharynx and air passages, induced by the inhalation of cold air, the tendency to haemoptysis from increased cough, irritability of the mucous membrane and congestion of the lungs, and deficiency of temperature from the cold. If the patient be restricted to an artificially heated atmosphere, he will have the evils of dryness, stillness and impurity of the air, and will be apt to have night sweats from excess of clothing."†

I fully concede with Dr. Wilson (*Health and Health Resorts*, p. 26), that as a summer resort for phthisical patients, and "overworked nervous system, and prostrated physical frames, our Northwestern States of Minnesota, Wisconsin, Colorado, Nevada and Idaho, with their clear, bracing and tonic atmosphere, will bear a favorable comparison with either the Alps, Appenines or Pyrenees; yet it is my humble opinion that no section east of the Rocky Mountains presents so many thermometric attractions and climatic advantages for the invalid in the winter as Florida. If the

* Fuller on the Lungs, 1867, p. 434.

† Smith on Consumption, 1865, p. 200.

patient requires a dry, bracing and temperate climate, it can be found in this State; if sea air with its concomitant harshness is indicated it can be secured; if an interior climate is desirable it can be found; if a given case demands a warm and comparatively moist climate it is accessible. Owing to the facilities and comforts for traveling, and the equable temperature, a change can be rapidly and safely made from place to place. When referring to the adaptability of the climate of Florida to the treatment of pulmonary diseases, Prof. Lee, of Geneva Medical College, remarks: "We have already spoken of the mildness of the climate of this region of the United States. It appears to possess an insular climate not less equable and salubrious in winter, than that afforded by the South of Europe, and is, therefore, well adapted to the forms of pulmonary disease, as bronchitis and incipient phthisis as are benefited by a mild climate. *Mildness* and uniformity are the two distinguishing characteristics of the climate of the Florida peninsula. It is easily demonstrated, that invalids requiring a mild winter residence, have gone to foreign lands in search of what might have been found at home, an evergreen land, in which wild flowers never cease to unfold their petals."*

The therapeutic importance of sunshine as an element in the treatment of disease, is unfortunately too little appreciated by invalids. "Lombard tells us that light stimulantes and darkness impedes respiration, and through respiration, of course, animal heat and muscular activity. Moleschott proved this fact by experiments upon himself, and the scientists, Bidder and Schmidt, noticing that animals at rest produced more carbonic acid in daytime than at night, equalized the amount by depriving them of the influence of light." An Emperor once went to Diogenes as he was reclining in his tub, and inquired what he could do for him. Diogenes replied: "*Stand out of my sunshine.*" And when a physician advises a patient to spend a winter in a cold and changeable climate, the latter should exclaim, with Diogenes, "*Stand out of my sunshine.*" Sunlight, in the language of Dr. Chambers, of St. Mary's Hospital, "is of importance to the invalid." And the invalid should remember the Italian proverb: "Where the sun does not enter, the doctor must." Dr. Maddon, who has made a special study of pulmonary diseases and climatic influences in their treatment, states: "That preference should always be given to those winter resorts which present the greatest inducements and oppor-

* Copeland's Dictionary of Medicine, vol. 1, p. 416.

tunities for *open-air exercise*, and no small part of the benefit desirable from removal to a Southern health resort results from the opportunities afforded in the latter of *being much in the open air*, instead of being cooped up within doors, as the patient would be during the greater part of the winter had he remained at home." *

Dr. Osgood, of Boston, no mean authority, remarks: "During the winter season we need every health-giving influence. Deprived of sunshine, we are less able to meet the stringent stresses of cold weather. Anything which lessens animal vigor, lessens also our ability to cope with the great changes in temperature, and the imperfect hygienic conditions to which winter exposes us. What sunshine is able to do for all life, may be seen in the joy of the birds, and increased activity of animals, and the greater vivacity and cheer which we feel when the sunshine returns to us, after days of absence behind the clouds. How we miss it when it is gone. How its absence (if prolonged) depresses us! Should we not learn the lesson and insist upon every ray of sunshine? Life in sunless rooms not only injures the bodily health, but most seriously depresses the mind. *Above all, sunshine should be given to the sick.*" The progress of the illness, and the effects of remedies will then be a thousand fold more favorable."† And I will ask you, if invalids can secure the health-giving influences of sunshine and out-door exercise in a climate where the thermometer oftentimes approaches zero, and snow storms, fogs and cutting winds confine him to an artificially heated room? Persons suffering from disease require sunshine, a moderate temperature, plenty of fresh and pure air, and an opportunity to take out-door exercise; and where east of the Rocky Mountains, during the cold months, but in the "balmy South," can these conditions be secured? Dr. Denison, p. 59, remarks: "The conclusion of our thermometrical observations is well expressed by Dr. Schreiber, that pulmonary consumption is neither favored by a low temperature, nor prevented, nor cured by a high one." Although an advocate for elevated climates, Dr. D. unconsciously supports our position that a temperate climate, is the climate *par excellence* for the invalid.

Dr. Osgood remarks: "The objection to our climate (Northern States) is that its sudden changes from heat to cold, from dryness to chilly dampness, are deadly in their

* Health Reports, p. 7.

† Winter and its Dangers, Dr. Osgood, p. 121.

effects upon the exquisitely sensitive blood vessels of the mucous membrane of the lungs." If sudden and great atmospheric changes are productive of disease in healthy persons (and this is universally admitted), it is to be presumed that such conditions will injuriously affect the invalid. Extremes of cold and heat, are not conducive to longevity or health, and in this, as in everything else, we may say with the poet: "*Medio tutissimus ibis.*" The mean temperature of a health resort is of much less importance than the rapidity and frequency of transitions between the highest and lowest temperature, and preference should always be given (other things being equal) to that climate which possesses the most equable rather than the warmest climate."*

As thermometric range is a matter of great importance in the causation and treatment of disease, more especially pulmonary affections, we will give the ranges for the cold months at a few points, recommended as winter resorts :

	YEARS.	NOVEMBER	DECEMBER	JANUARY.	FEBRUARY	MARCH.	MEAN FOR 5 MONTHS.
Atlantic City, N. J.....	4	45	48	48	48	46	47
Augusta, Ga.....	4	49	49	51	48	50	49
Minnesota, 3 stations.....	4	70	63	57	58	58	61
Florida, 3 stations.....	4	35	37	35	33	35	35
Colorado, 2 stations.....	4&2	68	70	72	58	66	67
Los Angeles, Cal.....	1	41	44	35	30	35	37

To illustrate thermal ranges for one year, we shall quote from the work of Dr. Denison, and add ranges for Florida obtained from Signal Service Reports for corresponding period :

	MEAN MONTHLY RANGE.	RANGE OF MONTHLY MEANS.	ANNUAL MEANS.	ANNUAL RANGE.
Atlantic City, N. J.....	41	44.1	49.7	89.5
Norfolk, Va.....	44	40.7	57.3	89.5
St. Louis, Missouri.....	53	57.4	54.2	117
Cheyenne, Wyo.....	61.5	48.9	43.6	136
Denver, Colorado.....	60.5	53.7	49.2	131
Colorado Springs.....	63.5	47.7	46.8	123
Florida Peninsula.....	29.7	19.2	73.4	50

* Madden, Health Resorts, p. 3.

The winter range at Atlantic City is comparatively low for a cold climate, but this advantage is counterbalanced by the low temperature and the high mean relative humidity. Aikin, S. C., has been lauded as a winter resort for consumptives, and as we have been unable to secure official data regarding its thermal range, we have given the figures of Augusta, Georgia. As the points are not far distant, we have reason to believe that the data which will apply to one will apply to the other. When referring to the climate of Aikin, Dr. Walton, of Cincinnati, says: "We find there a monthly range which ensures the occurrence of frost frequently, and causes the invalid an infinite amount of care in adapting himself to these changes."* We spent the winter of 1844 and '45, and 1845 and '46, in Georgia, and our experience led us to believe that the climate is too changeable for the successful treatment of pulmonary diseases.

With regard to Aiken, S. C., we must express it as our opinion, that it is adapted to the climatic requirements of invalids in October, November, May, and a portion of June; but we believe a more suitable climate for invalids can be found for the intervening months. Much attention has been directed of late to the mountain sanitarium of Dr. Gleitsman, of Ashville, N. C., and we are of the opinion that as a spring, summer and autumn resort for invalids, it is worthy of notice and patronage. The Doctor himself is a highly educated physician, and eminently qualified to conduct such an institution.

Elevation of sanitary resorts has attracted much attention of late years, and a few writers have insisted upon the importance of elevated localities as a preventive and a cure for phthisis. Some advise an elevation of 1,200 feet; others recommend 2,500 to 3,000, and others insist upon 6,000 to 8,000 feet. And the question arises, who is right? In support of their views, they refer to the immunity from phthisis in the mountainous regions of Switzerland; and at an elevation of about 9,000 feet in the warmer portions of South America. But the advocates of high altitudes, have evidently overlooked the interesting and instructive work by Dr. Emil Muller, of Winterthur.† This work, from which we shall quote a few figures, is principally statistical, and gives an elaborate account of the mortality from phthisis in that country.

* Comparison of European and American Climatic Resorts, G. Walton, M. D., Philadelphia, 1877.

† Der Verbreitung der Lungenschwindsucht, in der Schweiz, 1876.

"Average mortality from phthisis in the mountain regions of Switzerland :

ELEVATION.	FEET.	OCCUPATION.	
From.....	200	{ Industrial.....	10.2 }
To	1,600	{ Mixed	7.6 }
		{ Agricultural.....	6.0 }
		23.8
From	1,600	{ Industrial.....	10.2 }
To.....	2,300	{ Mixed	5.9 }
		{ Agricultural.....	5.3 }
		21.4
From	2,300	{ Industrial.....	4.7 }
To.....	3,000	{ Mixed	9.6 }
		{ Agricultural.....	2.9 }
		17.2
From	3,000	{ Industrial.....	6.5 }
To.....	3,400	{ Mixed	6.1 }
		{ Agricultural.....	3.5 }
		16.1
From	3,400	{ Industrial.....	9.8 }
To.....	4,400	{ Mixed	7.5 }
		{ Agricultural.....	5. }
		22.3
From	4,400	{ Mixed	7.7 }
To.....	5,000		
Above	5,000	{ Agricultural.....	4.11 }

These data are instructive, and negative the statement made of late years, that there is any special immunity from phthisis in the mountain regions of Switzerland. They show that a certain proportion of the population in the higher regions die as elsewhere from phthisis—the rate to a certain extent depending upon occupations in life. One of the highest factors among the industrial is 9.8 at an elevation of from 3,400 to 4,400. At 4,400 to 5,000 feet in mixed labor, the death rate from phthisis is 7.7; and among the agriculturists we find the mortality above 5,000 feet to be greater than at some lower altitudes.

These figures develop much of interest to the climatologist. At high elevations in cold climates during the winter months, persons are confined in imperfectly ventilated rooms, heated by stoves. Under such circumstances, respiration is imperfectly performed, and the products of retrograde changes are not perfectly eliminated—the health is impaired and phthisis is engendered. By living in winter on a Swiss mountain, or an elevated locality in the Northern or Northwestern States, the invalid is merely subjected to the climatic conditions of Archangel with a mortality from phthisis of 190 in 1,000, or of Wologda with a mortality of 204 per 1,000.

Phthisis appears to be rare in the elevated regions of tropical South America, and this is advanced as an argument for sending patients to an elevated locality in Europe and the United States. But unfortunately for the theory, the climatic conditions are entirely different. In Switzerland and the United States, the snow line is about eight thousand feet, and in tropical South America it is from thirteen thousand to seventeen thousand. Hence an elevation of eight thousand feet in Europe and the United States, is a totally different factor to that of a similar elevation in South America. In the latter country, at an elevation of even nine thousand feet, the climate is warm in summer, and temperate and bracing in winter—more closely resembling the climate of Florida than that of the elevated regions of Switzerland and the United States.

When advocating high latitudes, and referring to the absence of phthisis in this locality or that one, writers make no reference to race or the habits and occupations of the population. When they refer to the inhabitants of high altitudes in South America, they neglect to state that their houses and workshops are large and open, and that they are not subjected to sudden and great atmospheric changes, and are not confined in badly ventilated apartments, and daily and hourly poisoned by a contaminated atmosphere, the result of stoves and respiration.

Race as well as habits has much to do with the causation of phthisis. One argument advanced against warm and temperate climates is the great mortality among the colored troops in the British colonies. According to Dr. Livingstone, phthisis is almost unknown in Africa among the aboriginal tribes. Yet in tropical climates the mortality from phthisis among the colored troops is very great; but alcohol, exposure, syphilis and other factors can be made to account for the great mortality from this disease, in a race that enjoys an almost perfect immunity from it in an aboriginal condition under a vertical sun. In forming an opinion regarding climates, many factors must be considered, and altitude is of less importance than temperature, prevailing winds, dry soil, and a low mean relative humidity.

"With regard to the temperature of the air, it is absolutely certain," says Prof. Buhl, "that it is not the mean temperature of a place which regulates the frequency of catarrh or phthisis, but only the *larger, sudden and oft-recurring vacillations of temperature*, which the compensatory power of our body is unable to resist. Therefore the

temperature of the air, and its rapid vacillations must be regarded as exciting causes of inflammatory phthisis"* Atmospheric changes in the North and West are sudden and great ; but in Florida they are infrequent and not extreme. At times, what are called "cold snaps" occur, but their visits are infrequent, and they seldom last over one, two or three days ; and at any time the invalid can take exercise out of doors in the middle of the day. Owing to the low level of the land, the absence of snow and ice, and the warmth of the soil for a long distance to the north and west of this State, and the influence of the winds from the Gulf, the northerly and westerly winds are modified and robbed of their harshness and refrigerating effects before they reach Florida, and as a consequence they do not exert the same injurious influence that they do at points to the north and west of this State.

In reply to my circular letter, that accomplished observer and meteorologist, Dr. Baldwin, who has been in practice in this city for over forty years, remarks : "Stormy weather here is comparatively rare, sustaining a proportion of about one storm here to ten at the North and Northwest. The air here is remarkable for its purity, and the temperature renders it possible for the patients to take out-door exercise, so as to inspire the pure air."

The subject of winds is a matter of importance in estimating the adaptability of any climate as a health resort. The prevailing winds for the five cold months in Minnesota are from the north, northwest, and west. A reference to the Signal Service Reports shows that 453 observations were taken during November, December, January, February and March, at three stations in Minnesota, and north, northwest, and west winds were found blowing from these points 190 times. During the same period, and as a result of a similar number of observations at three stations in East Florida, the wind was found blowing from the east, southeast and northeast, 223 times. All are aware of the refrigerating effects of northerly and westerly winds in the North and West, and that during their continuance a majority of invalids must of necessity be confined to the house. The Apalachians interfere, to a great extent, with the course of northerly and westerly winds, and by the time they reach this favored land they are robbed of their injurious influences. At times these winds affect the northern and west-

* Letters on Tuberculosis, by Dr. Buhl, Prof. of Path. Anat. at Munich, Zolf Briefe, 1872, p. 146.

ern portions of the State, and several times during the winter slight frosts may occur. During some winters the mercury does not reach 32 deg. Fahr; as evidence of this, I need but refer to the fact that the lowest temperature in this locality during the past winter was 34 deg.

Easterly winds have a bad reputation, and it is somewhat remarkable, that the Rev. C. Kingsley never visited Florida, and yet he wrote an ode to the east wind :

"Welcome wild northeaster!
Shame it is to see
Odes to every zephyr,
Ne'er a verse to thee."

In one section of the world, at least, easterly winds are not objectionable, and this is in Florida. On the Peninsula easterly winds are the prevailing ones in the cold months. During November, December, January, February and March, at three stations in East Florida, easterly winds, east, northeast and southeast were found blowing at 224 observations. Owing to the proximity of the Gulf stream, with its vast volume of heated water to the east of the coast, the easterly winds are robbed of their harsh and searching properties which characterize them in most localities. As an evidence of the influence of the Gulf stream thousands of miles from Florida, even after it has parted with much of its warmth, we need but refer to its effects in modifying the climate of the south of England and France. However objectionable easterly winds may be in other sections, in this evergreen State they are the opposite.

Precipitation of moisture in the form of snow and rain, is a subject worth consideration by the invalid. In the North and Northwest the presence of snow renders the taking of exercise a laborious and unpleasant occupation; and when it melts and assumes the form of slush, walking entails the risk of wet feet, colds, and inflammatory affections of the lungs. In Florida, the winter is the dry season, and rains are infrequent. Owing to the character of the soil in a majority of places, the rain is absorbed as rapidly as it falls, and within a few minutes after a shower an invalid can walk out without incurring the danger of wetting the soles of his shoes.

One of the most important factors of climate in the treatment of diseases, and more especially affections of the respiratory organs, is a dry climate; and under the bare supposition that this or that is a dry climate, invalids are frequently consigned to an unsuitable locality. By some

peculiar process of reasoning, the masses have arrived at the conclusion that all cold or elevated localities possess dry climates. Hence we see advertisements of sanitariums, in which an elevation of 200, 500 or 1,000 feet is referred to as an evidence of "dryness of the air." But an unprejudiced examination of this subject will soon dispel the illusion. To illustrate the subject of "dryness of air" as dependent upon altitude, we will append a few figures from the Signal Service Reports for the years 1877-1878:

MEAN RELATIVE HUMIDITY.

STATIONS.	ALTITUDE.	NOVEMBER	DECEMBER	JANUARY.	FEBRUARY	MARCH.	MEAN FOR 5 MONTHS.
		per ct.	per ct.	per ct.	per ct.	per ct.	
Boston, Mass.....	142	68.0	61.8	66.6	68.2	63.7	65.6
Mount Washing- ton, N. H.....	6,285	87.9	78.2	84.7	76.7	85.6	82.6
Alpina, Mich.....	600	81.9	83.1	82.9	73.5	79.6	80.2
Savannah, Ga.....	48	72.3	69.4	66.1	66.8	65.8	68.1
Omaha, Neb.....	1,000	73.7	77.8	78.6	73.0	66.8	73.5
Jacksonville, Fla..	22	71.8	70.0	67.8	68.5	66.4	68.8
Yankton, Dak.....	1,278	73.3	78.5	74.1	75.8	63.0	72.9
Breckenridge, Minn.....	966	76.9	83.2	76.8	81.8	79.5	79.6

In Boston, Savannah, and Jacksonville, we have three stations at very low elevations, and singular to say, the mean relative humidity of these places is very low. But the most amusing thing in connection with this subject is the fact that patients are sent from Boston, Mass., to Minnesota, because the air of the latter State is "dry and desiccating." It may be refrigerating in winter, but not "dry and desiccating." Its low winter temperature, and sudden and great thermal changes, may be productive of inflammatory affections of the respiratory organs, but if we are to accept the views of those who have made diseases of the lungs a special study, it is certainly unsuited to the climatic treatment of a large majority of pulmonary diseases during the cold months.

In discussing the influence of a high mean relative humidity as a cause of pulmonary disease, Sparks, p. 106, asserts: "That dampness of the atmosphere of a place—a high relative humidity, is a potent predisposing cause of

phthisis." On this point, Prof. Buhl, *Zwölfter Briefe*, p. 147, remarks: "The majority of districts in which phthisis is rife, are distinguished by a high degree of atmospheric humidity, while on the other hand, the places where it is rare are remarkably dry. As a fact, a large and constant amount of dampness in the air gives rise to the phthisical constitution." Dr. Sparks, one of the latest and best authors on the influence of climate, and the cure of phthisis by climate, states: "Dampness of the atmosphere of a particular place—a high relative humidity is a potent predisposing cause of phthisis." Dr. Madden (*Health Resorts*, p. 4) remarks: "My experience as physician to three large institutions, have confirmed the observations in my first work, published several years ago, that there is no class of patients in whom we may more confidently hope for the beneficial effects of change of air than in the case of children predisposed to the scrofulous diathesis, or by hereditary taint to consumption. The climate chosen for the treatment of this predisposition to tuberculous disease, should be *dry, bracing and equable*."

By some unaccountable means, the opinion has become widespread that "Minnesota possesses a remarkably dry winter climate," and as a consequence patients are deceived and sent from a drier one. An examination of the Reports of the Signal Service, in regard to Mean Relative Humidity in the United States, will establish the fact that Minnesota does not possess a "dry and desiccating climate"—in fact, Breckenridge, Minnesota, is remarkable for its humidity. Newspaper correspondents and some parties interested in hotels and sanitariums north of Florida, and physicians who are ignorant of climate, have announced to the world that "Florida is a foggy, changeable climate, reeking with moisture," when the opposite is the fact.

To place the subject of Mean Relative Humidity in a clear and unmistakable light, we shall freely use the material furnished by the Signal Service Reports, and not use data of private individuals, which are not always reliable. I will simply remark, that when the atmosphere is saturated with moisture, it is said to contain 100 per cent., when one-half or one-quarter saturated, 50 or 25 per cent., and when absolutely dry, 0.

MEAN RELATIVE HUMIDITY.

	YEAR	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	MEAN FOR 5 MONTHS	MEAN FOR 5 MONTHS
		per ct.	per ct.	per ct.	per ct.	per ct.	per ct.	per ct.
Mentone and Cannes*.....	3	71.8	74.2	72.0	70.7	73.3	72.4	
Nassau, N. P.†...	1	76.1	72.0	77.0	72.5	68.4	73.2	
Atlantic City, N. J.‡.....	5	76.9	79.1	80.6	77.3	76.8	78.1	
Breckenridge, Minn.‡.....	5	76.9	83.2	76.8	81.8	79.5	79.6	74.5
Duluth, Minn.‡.	5	74.0	72.1	72.7	73.3	71.0	72.6	
St. Paul, Minn.‡	5	70.3	73.5	75.2	70.7	67.1	71.3	
Punta Rassa, Fla.‡.....	5	72.7	73.2	74.2	73.7	69.9	72.7	72.7
Key West Fla.‡	5	77.1	78.7	78.9	77.2	72.2	76.8	
Jacksonville, Fla.‡.....	5	71.9	69.3	70.2	68.5	63.9	68.8	
Augusta, Ga.‡...	5	71.8	72.6	73.0	64.7	62.8	68.9	
Bismarck, Dak.‡	1	76.6	76.4	77.4	81.6	70.6	76.5	
Boston, Mass.‡..	1	68.0	61.8	66.6	68.2	63.7	65.6	

It is nothing unusual to send patients from Boston, Mass., to Minnesota, because the opinion prevails that the air of the latter is "dry." The mean relative humidity for the five cold months in Boston is 65.6, and the mean for three stations in Minnesota is 74.3, 8.7 per cent. in favor of the former. Patients are advised to leave Philadelphia and secure the advantages of the "dry climate of Atlantic City." Yet the mean for Atlantic City is 78.1, and that of Philadelphia 73.9, a difference of 4.2-10 per cent. in favor of the latter. The public and a large majority of the medical men speak of Minnesota as possessing "a dry and desiccating climate," and Jacksonville "a moist and changeable one"—an "atmosphere loaded with moisture." But three stations in the former give a mean of 74.4, and Jacksonville 68.8, or 5.7 in favor of Jacksonville.

A French proverb is: "*On ne meurt que de betise*" (the common cause of death is stupidity), and it seems to be applicable to a portion of the profession, as far as a knowledge of climate is concerned. It is the great duty of the profession to prevent disease, and when it arises to relieve

* Riviera, Dr. Sparks, p. 9.

† From Meteorological Records of Military Hospital, Nassau, N. P., obtained for writer by A. O. Osborn, Esq.

‡ Signal Service Reports.

it by natural and harmless remedies in preference to drugs. And I will ask you how many physicians are familiar with the factors of any climate, and sanitary laws ; and how many are competent to give a just opinion regarding the advantages or disadvantages of any given sanitarium or winter resort ? To use the language of a learned legislator : " The physician is like Nebuchadnezzar ; he dreams, and death is the sentence of him who cannot divine what that dream was." A physician simply recommends a patient to go to Florida, without carefully inquiring into the special conditions of the case, or determining if the patient requires a dry or moist climate, a bracing or relaxing one, a residence in the interior or on the coast, a high or moderate range of temperature, for all these conditions can be found in this State. The word "Florida" is sufficient, and the medical adviser is relieved of responsibility. These are matters of the gravest importance as affecting human life ; and the time has arrived when our Medical Colleges should have a chair of Climatology and Hygiene, and render a knowledge of these subjects essential to graduation. At present, much ignorance prevails even in high places with regard to climate ; and I will ask you what proportion of physicians who recommend patients to sanitariums and climatic resorts, can give intelligent answers regarding prevailing winds, diseases, temperature, thermometric range, atmospheric changes, water, soil, humidity and other important climatic factors.

Among the factors on which the development and progress of pulmonary diseases certainly depends, dampness of soil is an important one, and merits the consideration of physician and patient. Every agricultural engineer is aware of the fact that draining soil renders it warmer and more healthy. Sparks, p. 106, states : " A high relative humidity, especially when associated with a damp soil, is a potent predisposing cause of phthisis." Dr. Pollock, in his lectures at the Consumption Hospital, London (Med. Times, 1878), remarked : " Low, damp and ill-drained localities are those where the disease is most prevalent and fatal." A wet, cold soil is productive of pleurisy, pneumonia, bronchitis and rheumatism. In analyzing the cause of 1,000 cases of phthisis, Dr. Williams found that " 14.2 per cent. could be traced to inflammatory attacks of the lungs." And according to Dr. Pollock, " a still greater number are preceded by rheumatism."—Sparks, p. 105.

Amongst the numerous valuable reports which Dr. Buchanan, in his official capacity of Health Inspector, submit-

ted to the Privy Council of England, there is perhaps none which is of more interest than his report on "The Distribution of Phthisis as affected by dampness of soil." Dr. B. ascertained that in certain towns that had been drained, that the mortality from phthisis had greatly diminished, and the rate of diminution was found to correspond with the extent of the drying of the soil. It was found that wherever the drying of the subsoil had been effected either by the construction of drain sewers, or by special drains, the mortality from phthisis had decreased from about 50 per cent. downwards. From a thorough and prolonged investigation of the subject, Dr. Buchanan determined that "there was much less phthisis among populations living on pervious soils, than among populations living on impervious soils." That there was "much phthisis with much wetness of soil, and little phthisis with little wetness of soil."

But the priority of investigating the influence of wet soils as a cause of pulmonary diseases, is due to Dr. Bowditch, of Boston, Massachusetts. In an address delivered before the Massachusetts Medical Society, in 1862, Dr. B. remarked that "Medical opinion in Massachusetts, as deduced from the written statements of physicians of 183 towns, tends to prove the existence of a law in the development of consumption in Massachusetts, which law has, for its central idea, that the dampness of the soil of any township or locality is intimately connected, and probably as cause and effect with the prevalence of consumption in that township or locality." "But, in addition to phthisis, there are other diseases whose prevalence is largely affected by dampness of soil. Thus, rheumatism, catarrhal complaints and ague are especially common in damp districts. An undrained or damp state of soil is fully proved to be highly inimical to health, and according to Mr. Simon, it answers to the legal definition of the term nuisance."* "Dampness of soil may presumably effect health in two ways. First, by the effect of water, *per se*, causing a cold soil, a misty air, and a tendency, in persons living on such a soil, to catarrhs and rheumatism; and second, by aiding the evolution of organic emanations. A moist soil is cold, and is generally believed to predispose to rheumatism, catarrh and neuralgia."† A sandy soil at a suitable elevation to ensure perfect drainage without an impervious layer of clay near the surface, will be a dry soil, and a clayey soil, on the contrary, a moist soil. Soils con-

* Hand book of Hygiene, G. Wilson, M. D., 1873, p. 272.

† Practical Hygiene, E. A. Parkes, M. D., p. 306.

taining an excess of organic elements are injurious, for they tend to produce malarious diseases, so injurious to invalids.

Dry, sandy or gravelly soils, at a sufficient elevation to insure perfect drainage, will be, *caeteris paribus*, more healthy than a cold, clayey soil, or even a sandy soil, with water near the surface at a higher elevation. And before a physician advises a patient to visit a given winter resort, he should acquaint himself with the peculiarities of the locality as regards soil and moisture; for if a cold, moist soil is productive of disease, a locality where such soil exists cannot be favorable for the invalid, and should be avoided. Dr. Jones, of St. Paul, Minnesota, says that "those localities only should be recommended, where the soil is sandy, or highly pervious to water, and where rain-fall is rapidly absorbed." These conditions exist to a marked degree in a large portion of this State; hence its advantages as a climatic resort.

To establish the advantages of cold climates, and Minnesota in particular, in the treatment of consumption, Dr. Jones refers to the infrequency of this disease in Iceland, Nova Scotia, Norway and Sweden. At p. 289, he remarks: "The geographical location of Minnesota protects her from all oceanic influences. It need scarcely be repeated that this marine atmosphere is a fruitful source of mischief to consumptives, as *indicated by the death rate* of those persons residing in situations where this influence is operative. It is not surprising that Florida should suffer from this scourge, when we remember that it is a *peninsula*, and, therefore, exposed on two sides to this oceanic influence." But *mirabili dictu*; his whole plea for "cold climates" is based on the absence of phthisis in countries subjected to "oceanic influences." Iceland is surrounded on four sides by water. Nova Scotia is almost an island, and Norway and Sweden are more of a peninsula than Florida. If "oceanic influences" are so deleterious in this State, why not in those countries? In my opinion, the remarkable exemption from consumption in Florida is, to a great extent, to be attributed to the fact that it is nearly surrounded by water, and that it is nearly always subjected to "oceanic influences," as Iceland, Norway, Sweden and Nova Scotia.

Dr. Packard, surgeon to the Episcopal Hospital, Philadelphia, says: "We are told by meteorologists, that the sea air contains more ozone than inland places. It may be taken as a fact, that the presence of oxygen in this form is

one important element of the tonic and stimulating effect of the atmosphere of the sea-shore. Hence, we have at the sea-shore a *pure air*, containing oxygen in the form of ozone. Upon most persons the effect of breathing this air is tonic and invigorating, producing an immediate sense of exhilaration, improving the appetite, and promoting digestion." Pages 21, 22.

In opposition to the views of Dr. Jones, many leading physicians in England and on the continent send their patients to the sea-shore in summer and winter; and in the North, more especially in Philadelphia, leading physicians even send their patients to sea-side resorts in winter. Dr. Packard writes: "Children recovering from lung troubles, as bronchitis, whooping-cough, etc., are sent to Atlantic City or Cape May, in the latter part of winter. For many consumptives, as well as for those who labor under chronic bronchitis, the sea-shore affords a most valuable winter resort. The purity of the air, with the greater equability of temperature, enable them to breathe more easily, and it is sometimes surprising to note the diminution in the severity and frequency of the cough. A like beneficial effect is produced upon asthmatics, who, indeed, are very often subjects of chronic bronchitis."*

The water supply of a health resort may appear to be a trivial matter, but it is one of special importance to the invalid. Impure water has long been recognized as one of the most potent causes of disease, and it is only of late years that minute investigation has succeeded in demonstrating the great mortality which it inflicts on all classes of the community. In many localities in the South, the water is impregnated with vegetable matter, and should be avoided by the sick. In the older towns, more especially if the soil is sandy, and if sanitation has been neglected, the well water is apt to be contaminated with the drainage of water closets and kitchen slops, and, as a consequence, unfit for use, and productive of typhoid fever and intestinal derangements. In my numerous visits to the country districts of this State, I have frequently met with persons with enlarged abdomens, and waxy complexions, traceable, in almost every case, to the use of bad water and improper food. Whenever the residents of this State drink pure water and live on digestible and nourishing food, sickness and broken health will be found to be less than in any State east of the Rocky Mountains. As so many dangers lurk in apparently pure water,

*Sea Air and Sea Bathing, by J. H. Packard, Philadelphia, 1880.

invalids and strangers should, if possible, drink rain water whenever obtainable ; and in selecting a hotel or boarding house at any winter resort, strict inquiry should be made with regard to the water supply, its source and quality. "The drainage and water supply," remarks Sparks, p. 245, "of a health resort, are scarcely, if at all, less important than its climatic conditions, because if people are to be poisoned by sewer gas, or poisonous sewage contamination, they had better stay at home."

Malaria is a subject which enters into the discussion of all Southern climes, and we unhesitatingly assert that Florida has been misrepresented in this respect. "It is the custom," remarks Dr. Lente, p. 21, "of many persons living at Florida resorts, off the St. Johns river, to represent for obvious reasons, that fever prevails there the year round, and that it is dangerous to resort to it at any time. In this manner they have excited senseless alarm in the minds of those proposing to come to Florida, and have diverted them to other Southern resorts, thus in the end injuring themselves as well as others." Unprincipled hotel keepers and runners, and the agents of steamboat and railroad lines leading to other localities, aid more or less in this fraudulent attempt to gain patronage. The bugbear, malaria, is, in my humble opinion, a prolific source of disease among visitors to Florida. By misrepresentations (to use a mild term) tourists and invalids have been led to believe that the entire water supply is productive of disease, and as a consequence, they refrain from drinking a sufficient quantity of water, or dilute it with poor whisky or brandy, to counteract its bad effects. Interested parties have expatiated so much with regard to the air being charged with malaria in winter, that invalids and patients become alarmed, and as a sequence they daily swallow quinine, and thereby produce nervous or functional derangements. They keep the pure air out of their rooms, breathe an air contaminated with their own breaths and exhalations, and at night assemble in halls and parlors and inhale vitiated air poisoned by their own breaths and the elements resulting from the combustion of coal gas and kerosene. They inhale for hours at a time, air charged with carbonic acid, and shun the pure night air as they would the emanations of the deadly Upas tree. Visitors act imprudently, and as a consequence, suffer from nervous derangements, colds, and diarrhoeas, which they attribute to malaria or the climate. The cause of slight indispositions affecting visitors, is not malaria, but indulgence at table, change of drinking-water, eating excessive quantities of

fruit, or the inhalation of air poisoned by human breaths, or the resultants of the combustion of coal gas and kerosene, and a deficiency of the pure air that a beneficent Creator has placed everywhere within their reach. If visitors would let quinine and arsenical pills alone, control their appetites, eat moderately, inhale plenty of the salubrious air of the State, and not swelter in heated halls, parlors, and unventilated bed-rooms, we should hear less of the bugbear, malaria. At various times since 1844, I have navigated the larger streams of this State, visited the Everglades and Lake Okeechobee, and almost every bay inlet and river, from Cape Sable to the Suwannee River, and for over two months at a time, slept in an open boat, with nothing but a simple awning stretched over the boat's boom, and in no instance did my companions or self suffer from malaria or a chill. Before I became a resident of the State, my companions and self were unacclimated, and in no instance were we so foolish as to swallow quinine, arsenic, or alcoholic liquors as antidotes to malaria or chills. I speak from personal observation, experience and extended inquiry in various portions of the State, and I unhesitatingly assert that the opinion entertained with regard to the prevalence of malaria during the cold months in Florida, is unfounded. When discussing the advantages of Florida as a climatic resort, the eminent Dr. Forry predicted: "From a long residence in Florida, attached to the United States Army, that when the period of the red man's departure shall have passed, the climate of this land of flowers would acquire a celebrity as a winter residence not inferior to that of Italy, Madeira, or Southern France."*

"All know," remarks Dr. Brinton, p. 128, "how terribly arduous must be campaigning among the Everglades of Florida, yet the yearly mortality from disease of the regular army there, was only 26 per 1,000 men; the average of the army elsewhere was 35 per 1,000, while in Texas it rose to 40, and on the lower Mississippi to 45 per 1,000." If persons are suffering from malarial cachexia they may have chills at any season in any climate. But a few weeks since I was requested to visit a young lady visitor, whose home is Fifth Avenue, New York. The only time she had been dressed for three months, was the day she was driven to the Savannah steamer. Upon inquiry, I found that quinine, arsenic, and Warbeck's tincture, had failed to cure her of chills. She arrived in this city in the latter part of Feb-

* Copeland's Dictionary of Medicine, vol. 1, p. 417.

ruary, and at the end of two weeks she departed for home, *sans* chills, *sans* malaria, *sans* debility. From my experience in hospitals and private practice in and near New York, I have no hesitation in stating that malarious diseases are more frequent there than in Florida. From my observations from Canada to the Gulf of Mexico, I am convinced that febrile diseases assume a milder form, and are more easily cured in Florida than in States to the north of it. I shall no doubt be met with the reply: "Look at the waxy complexions and gaunt forms of many Floridians, met with at some of the landings and depots." I admit the mild impeachment, and can attribute their cachectic condition to bad water, insufficient clothing, unsuitable and uncomfortable habitations, and the improper food they eat from childhood to the grave. In any other State but Florida, they would be the victims of enlarged spleens, cardiac dilatation, chronic gastritis, tuberculosis, dropsical effusions or albuminuria. But contrast the natives referred to with those who have comfortable homes, sufficient clothing, and who drink pure water and use good and nutritious food; or with Northern and Western people who have been in the State for years, and the latter will be found to be pictures of health. I admit that in Florida, as everywhere else, there are insalubrious localities, but they should be avoided by strangers. But to avoid them, interested parties should not listen to the senseless twaddle of irresponsible hotel keepers, hotel and steamboat and railroad runners, or strangers suffering from a severe attack of Aerophobia. A majority of the cases of illness occurring among visitors in this State, are referable to indulgence at table, drinking impure water, the inhalation of impure air, the American weakness of rushing hither and thither, occupation of unventilated rooms, and a ridiculous system of senseless drug-ging indulged in by strangers, as a consequence of the advice given by physicians who are ignorant of the climate and its diseases. To illustrate the frequency of malarious diseases—intermittent and other fevers during the cold months in this county, I have examined the records of the county hospital under my superintendence, and find that the following cases of malarious diseases were admitted for the five cold months of '79 and '80:

	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH
Remittent fever.....	1	0	0	0	0
Intermittent fever.....	1	0	0	0	0
Congestive fever.....	0	0	0	0	0
Typho Malarial fever.....	0	0	0	0	0

When we come to estimate the influence of climate on health, we should consider adjuvants outside of climatic factors. To insure success in the treatment of disease or broken health, something more is necessary than dryness of air and a moderate range of temperature. The locality selected should present various attractive features, so as to keep the patient from brooding over his infirmities. The invalid requires cheerful society, sources of amusement and occupation, an opportunity to walk, ride, drive, boat, fish, botanize and enjoy sunshine, and day by day, and hour by hour, find some source of divertisement.

The importance of pure air (uncontaminated with noxious effluvia and germs so common in interior sections), more especially that of the ocean, has not received the attention its importance demands.

Ozone is considered by many as an important constituent of the atmosphere, for by its "presence pure air may be inferred to exist." This allotropic condition of oxygen possesses a great power of destruction of organic matter floating in the atmosphere. Dr. Jones, of St. Paul, lays great stress upon the importance of ozone in the climatic cure of pulmonary diseases, and intimates that Minnesota is favored in this respect, as there is much more of this substance in the "higher than in the lower strata of the atmosphere," and that this is an argument against "sending patients to Florida." At another point he informs us that "the air of the sea and mountains is richer in ozone than the atmosphere of the plains." If Dr. Jones' statement is accepted as fact, Minnesota is not suited to consumptive patients, for it is not surrounded by the ocean, nor is that State favored with mountains. The Florida peninsula is surrounded by the sea, and as the land is almost constantly fanned by sea breezes containing a large amount of ozone, the "Land of Flowers" must of necessity be better adapted to the climatic treatment of pulmonary diseases than Minnesota. According to Sparks, p. 410, "it seems clear that the substance

giving the reaction of ozone is not deficient in marshy districts." According to the researches of Burdel, he found as "much ozone in the air of marshes as in other air." Clemens says: "There is a large proportion of oxygen near the surface of lakes, giving the reaction of ozone," more especially if there are certain aquatic plants present; and he also remarks that at some feet above the surface, the reaction is lost. Grallois has lately stated that he "found more ozone over marshes than anywhere else." Dr. Schreiber, of Vienna, asserts "that the turpentine exhaled from pine forests possesses, to a greater degree than all other substances, the property of converting the oxygen of the air into ozone." In this connection, Dr. Denison remarks: "If this be true, it will explain why a residence among the balsamic odors of the pines has long been esteemed of benefit to the pulmonary invalid." Florida is densely covered with pine forests, and if we accept the statement of Dr. Schreiber, Dr. Jones is in error. Dr. Moffat found the quantity of ozone in the atmosphere greater when the mean daily temperature was above the mean. According to the researches of Dr. Denison in Colorado, the excess of ozone appeared during the spring months on the plains, and came proportionately later in the season the higher up the observations were made." If we accept as correct the statements of the authorities quoted, and Florida is amply supplied with ozone, and if according to the statement of Dr. Jones, "ozone is exceedingly valuable in the climatic treatment of phthisis," patients should be sent to Florida in winter, and to elevated and mountainous regions during the summer.

"Food, the kind, quality, and the manner of its preparation, is a matter of no small importance to the invalid, and no climate, however suitable in other respects, is proper for him, if he cannot obtain good and decently cooked food."—Lente, p. 43 In phthisis, food is a matter of more importance than medicine, and this subject is sensibly referred to by Dr. Bennet. "The food taken by consumptives should be of the most nourishing kind, well cooked and abundant in quantity. Indeed, the quantity of food taken by consumptives should only be limited by their digestive powers. In my opinion the principal value of medical treatment in phthisis is the restoration of digestive tone, when impaired or absent. If patients can be brought to eat, to digest and to assimilate, they have a chance of recovery. If they cannot, their chance is indeed slight." One great objection to many portions of the South, as winter resorts for invalids, is Southern cooking, which, in some localities, is character-

ized by the use of excessive quantities of grease and the ever-present corn bread and bacon. But in the cities, towns, and the better class of winter resorts, the cuisine is all that can be desired. In some hotels, the tables cannot be excelled by those of the North.

The character of the buildings at a health resort has much to do with the successful treatment of disease, and this subject does not receive due and proper consideration. In some portions of the South the buildings are poorly constructed, and in some instances unsuited to the requirements of the invalid. The invalid should select a well constructed building, sufficiently elevated above the surface of the soil, where the soil is dry, and permanent water is at considerable depth below the surface.

Considering climatic factors, as a result of experience, observation, investigation and study, we are convinced that Florida presents more attractions and advantages as a winter resort for invalids than any State in the Union. The temperature is favorable, the mean relative humidity is peculiarly adapted to the treatment of all forms of pulmonary disease, the air is salubrious, and in a large portion of the State dry and bracing; atmospheric changes are infrequent, and not so great as in other sections east of the Rocky Mountains. Rains are infrequent, and sunshine and fine weather the rule. The State possesses insular, interior, dry and moist localities, semi-tropical and cooler sections; and if the nature of any given case should necessitate a change of base, a suitable climate can be reached in a few hours and at a trifling expense.

For fear of being accused of painting Florida in too bright colors, we shall use the language of others:

"The atmosphere is generally dry and clear, owing to the evenness and salubrity of its climate. Florida has long been a popular resort for invalids, and especially those afflicted with pulmonary complaints. Of the total deaths from all causes in Florida in 1870, as reported by the Federal census, only 131 were from consumption. There were 17.3 deaths from all causes to one of consumption. The advantages of the climate in this respect are further shown by a comparison of the statistics relating to consumption as reported by the census of 1870, from which it appears that the ratio of deaths from consumption to those from all causes, was less in Florida than in any State except Nevada; and this advantage becomes still greater when it is considered that, Florida being a popular resort for consumptives, *a large proportion of those who die there from that cause*

*came with the disease from other States.** It must be remembered that the first immigrants to a new State like Nevada, are, as a rule, robust and possess good constitutions; and we must wait for a few decades before we can arrive at a correct conclusion with regard to the prevalence of phthisis. My observations, extending over three years in our county hospital, justifies me in stating that a very large proportion of the cases of phthisis admitted into the institution were the result of constitutional syphilis, and not attributable to climate.

Dr. Charles A. Lee, the learned editor of Copeland's Medical Dictionary, remarks: "Proceeding south from Canada to Florida, the seasons become more uniform in proportion as their annual temperature increases, and they glide imperceptibly into each other, exhibiting no great extremes. Compared with the other regions of the United States, the peninsula of Florida has a climate wholly peculiar. The climate is so *exceedingly mild and uniform*, that besides the vegetable productions of the Northern States generally, many of a tropical character are produced. We have already spoken of the mildness of the climate of this region; it appears to possess an insular temperature not less equable and salubrious in winter than that afforded by the South of Europe, and is, therefore, well adapted to those forms of pulmonary disease, as bronchitis and incipient phthisis, as are benefited by a mild climate. *Mildness and uniformity* are the two distinguishing characteristics of the Florida peninsula. If we compare the climate of East Florida with the most favored situations on the Continent of Europe, and the islands held in the highest estimation for mildness and equability of temperature, in regard to the mean temperature of winter and summer, that of the warmest and coldest months, and that of successive seasons, we shall find the results generally in favor of the former." After citing the mean difference of successive months and annual range of a number of climatic resorts in comparison with stations in Florida, he remarks: "Thus it is easily demonstrated, that invalids requiring a mild winter residence, have gone to foreign lands in search of what might be found at home—an evergreen land, in which wild flowers never cease to unfold their petals."†

In discussing the most suitable climates for invalids, Dr. Wilson, late Medical Inspector of Camps and Hospitals,

* American Encyclopedia, vol. vii, p. 281.

† Copeland's Medical Dictionary, vol. 1, pp. 402, 404, 416.

United States Army, remarks : "Neither upon the southern coast of France, nor anywhere under the bright Italian skies, can a winter climate be found so equable and so genial to the delicate nerves of most invalids as can be enjoyed in our sanitary stations in Florida."*

Dr. H. A. Johnson, of Chicago, states : "I had about fifty patients last winter in Florida and Georgia, and they came back better. Even in those in whose lungs cavities existed, were better than they would have been had they stayed in Illinois. I will, therefore, advise patients in the latter stages to go to Florida."†

At page 1235, vol. 3, of Copeland's Dictionary of Medicine, we find the following : "Dr. Forry and other writers of authority, recommend a change of climate in this disease, as a remedial agent of great efficacy, and especially the peninsula of Florida."

Over half a century ago, Captain Vignoles, an intelligent gentleman, traversed a large portion of Florida, and wrote : "That the climate is good for patients of a consumptive habit is notorious, several persons during the last winter and spring from Carolina and elsewhere having recovered their health ; and that the air is not at any season hurtful is equally well known. The fashion of sending invalids on an expensive journey to the south of France and Italy, may be superseded, if physicians could be induced to recommend a winter in Florida to their patients. The attention of the faculty is seriously entreated by the author to this subject, and to the propriety of ordering their debilitated patients to try the salubrious air of Florida."‡

Florida is not esteemed by all as a climatic resort for invalids, and I shall quote from Dr. Jones' Essay, pp. 277, 278. He says : "Florida, which has been vaunted as a sanitarium for invalids, shows a greater ratio of mortality from phthisis, to-day, than Minnesota. Florida is, perhaps, to-day, more frequented by invalids than any of our Southern places of resort. The exceeding fatality of consumption to families who for generations have resided in the State, as well as the unfavorable effects, as a rule, observed upon patients who visit that State in declining health, is well known. We are not surprised that such is the case, after

* Health and Health Resorts, J. Wilson, M. D., Philadelphia, 1880, p. 26.

† Trans. Am. Med. Congress, pp. 422-3.

‡ Observations on the Floridas, by Charles Vignoles, New York, 1823, p. 111.

having carefully analyzed the climate, for there is little that can be said in its favor, and a great deal which must be said against it."

In making such a sweeping statement, in which the welfare and progress of a State is involved, it would have been but just and professional for the writer to have furnished references to authors, resident physicians, or statistical evidence to substantiate his assertions. But his unauthorized statements is evidence of the assumptions of ignorance in a person who is disposed to injure a State, of which he has no personal knowledge, no reports from resident physicians, or no reliable data upon which to base an opinion.

In this State we have no State Board of Health, and no compulsory registration of deaths, and it was impossible for Dr. Jones to base his statements upon any evidence but the United States Census, and the Army Reports, and mortuary returns of this city, and these are favorable to the State. If Dr. Jones had been impartial and disposed to adopt a professional course, he would have written: "Florida is a favorite resort for invalids. Many persons visit the State in the last and incurable stage of phthisis and die there, as everywhere else; and as we have no mortuary tables, or the means of ascertaining how many residents or invalids annually die in that State of phthisis, we are not justified in expressing a positive opinion." But such a professional statement would not have aided the gentleman in accomplishing his end.

In his essay, Dr. Jones refers to the great mortality in the city of Jacksonville, and as reliable data are important, I addressed Dr. Knight, Health Officer of the city, and received the following reply:

"Residents who died during years of 1878 and 1879, from phthisis, 11. Percentage of deaths by phthisis to total mortality, 0.55."

Dr. Jones asserts that the mortality from phthisis is great in families that have lived in Florida for generations. The writer did not institute a personal investigation, or correspond with our leading physicians, and as no State mortuary reports have been published, the question arises, "From what source did Dr. Jones obtain his information?" A statement of this kind requires side evidence in the way of statistics, mortuary reports, or reliable information—not mere assertion, based on preconceived opinions. My observations and inquiries led me to the opposite conclusion, but being loth to express a positive opinion in opposition to that of an eminent member of the profession, I addressed a circu-

lar letter to leading physicians in various portions of this State, and shall give a few queries propounded and the answers received.

QUERY.—How long have you practiced medicine in this State?

ANSWERS.—Twenty-eight years. Twenty-two years. Twenty-three years. Twenty-four years. Twenty-five years. Twelve years. Seven years. Thirty years. Thirty-six years. Twenty-eight years. Twenty-one years. Thirty years. Twenty-one years. Forty-two years. Five years. Forty-nine years. Thirty years.

QUERY.—Have you noticed any tendency to the hereditary transmission of phthisis in families that have resided for generations in this State?

ANSWERS.—None. None of a marked character. Hardly an instance; so seldom as to make it an exception. No. No. None. In one family for three generations members died of phthisis; the present members of the family are quite healthy, and I am convinced the hereditary tendency is removed. In one instance only. Not more so than in other States. I have no recollection of any case. Seldom developed, and when it occurs, milder and more favorable than in Northern and Western States. In some rare instances. Not more so than in other families. Hereditary taint dies out. Know families here born of consumptive parents, who have passed the meridian of life and exhibit no signs of pulmonary disease.

In the *ipse dixit* of Dr. Jones, we have the opinion of a theorist who studied the climatology of this State, and the hereditary transmission of phthisis in our old families, in his cosy sanctum in St. Paul. And, in opposition to his assertion, we have the positive statements of educated, experienced and reliable medical gentlemen—gentlemen who are competent to form intelligent and unbiased opinions, and whose aggregate experience in the profession covers 433 years, or an average of over 25 years.

To determine the question of transmissibility of phthisis in this State, in families predisposed to this disease, I propounded the following queries:

QUERY.—Do you know any persons who are residents of this State, who came here suffering from phthisis, and who have had children since they became residents?

ANSWERS.—Yes I do. Yes, more than a dozen. Several. Several. Yes. Yes. Yes. I do. Yes. A number. Yes. Yes. Quite a number. There are many to my knowledge. Yes.

QUERY.—Have you noticed any disposition among children of such parents to manifest any hereditary tendency to phthisis?

ANSWERS.—No, I have not. Not in any case. No. None. None. No. No. No. I have not; their children are as healthy as any I have seen in any part of this country. In two instances only. No; children of such persons are healthy. No. Have noticed no such tendency in such children. No. Very infrequent. None.

Dr. Jones refers to the “unfavorable effects, as a rule, observed upon patients who visit Florida in declining health.” As his essay is devoted to the consideration of climatic treatment of phthisis, we must conclude that by “declining health” he means phthisis. If the opinion of Dr. J. is correct, it is surprising that thousands of persons visit Florida each winter for their health, and that the number increases annually. In my visits to various portions of the State, I have met numbers who have settled here as invalids, who have been cured by the climate, or who are in the enjoyment of fair health. Like Dr. Jones, I have “carefully analyzed the climate,” but am not disposed to hazard a positive opinion; hence I shall quote queries from my circular letter, and give the replies received.

QUERY.—Is tubercular consumption as liable to be developed here as in the northern and northwestern portion of the United States, in persons predisposed to the disease?

ANSWERS.—No, sir. No. It is not. From my experience North and South, I unhesitatingly say no. No. No. I think not. I have not seen an instance in which it was developed in a person predisposed to it. It is not. No. There are very few cases developed in this climate. It is a rare thing for phthisis to be developed in this State in the predisposed. No. Such has not been my experience. It certainly is not. No, it rarely occurs. No.

QUERY.—Does the climate of Florida favor the cure of phthisis developed elsewhere?

ANSWERS.—Most certainly. It certainly does, and especially in those whose lungs are softened and tubercles and cavities exist. It does, as I know from observation. In my opinion, decidedly yes. In most cases. If persons avail themselves of the climate sufficiently early. Yes. It does. Yes. I have known many cases cured by coming to this climate. It does; I have known many cases cured, and others relieved and life prolonged to old age. I have known many cases cured by coming to this climate. Yes. I am sure it certainly does. It does; I have known many

cases. Yes, advanced cases are often cured by this climate. It does.

QUERY.—Do you know persons now living in this State, or elsewhere, who came here suffering from phthisis, either incipient or developed, who have been benefited by a residence here?

ANSWERS.—Yes, many of them. I do. A great number. Quite a number whom I can name. Several. Yes. Yes. Yes. I do. I have seen many benefited during my residence here, and I know of quite a number now living here, who have been cured by a residence in this State. Yes. Several instances (names and residences given). Numbers of cases. I have known many persons who have been restored to health, and many whose health has been improved. I know many such. Yes, I can mention many. Several.

QUERY.—Do you consider the climate of this State favorable to the treatment and cure of pulmonary diseases?

ANSWERS.—In my opinion, it is the finest climate in the world for tubercular diseases. I have seen so many benefited, that I would recommend it in almost every case. I do above any other that can be found on the American continent. Decidedly. I do. More so than in any State in which I have lived. Yes. All are not benefited; many certainly will be. I certainly do. I consider it the most favorable climate on this globe for the relief and cure of phthisis. Superior to any in the United States. Yes, most positively. Yes. Most certainly; I have known numerous cases fully restored here and have returned North and remained well. I do. I do, decidedly. I do.

In his essay, Dr. Jones informs us that he has "carefully analyzed the climate [of Florida], and little can be said in its favor, and a great deal must be said against it." As Captain Cuttle would say, "Here's wisdom for you, intense wisdom." The inquirer after truth has a right to require that scientific doctrines which he is asked and expected to receive as true, should be supported by observation, facts, experience, or statistics—not by assertions and statements of writers who are ignorant of the climatic conditions of a locality they are condemning.

All Dr. Jones' conclusions appear to be based on the following sentence: "Hygrometric measurements show that the atmosphere of Florida is loaded with moisture." But the Doctor carefully avoids the publication of any data or tables regarding the mean relative humidity of Florida. We have placed before you reliable meteorological data, which we

think will establish the fact that Florida possesses a dry climate, and that Dr. Jones' statement is unfounded and calculated to mislead. It is not the misrepresentation of a State alone which is censurable. If Dr. Jones' statements are incorrect, numerous invalids may be misled and injured, and in our opinion, this is an important consideration. When life and health are at stake, writers should not hazard statements upon mere conjecture or popular opinion.

One of the most amusing assertions of Dr. Jones, in condemnation of Florida, is the following: "In Florida everything unites to repose; an irresistible feeling of languor seizes a person; one's energies are paralyzed, and exercise consequently neglected." It is evident that the Doctor never visited this State, or he would not have hazarded such a statement. I am forced to entertain views opposite to those of Dr. Jones, but as I am too modest to express a positive opinion based on my own feelings and experience, I propounded the following query in my circular letter:

QUERY.—Do you consider the climate of this State, from October to May, bracing and invigorating, or enervating and depressing?

ANSWERS.—Bracing. Bracing and invigorating. Bracing and invigorating. Dry and stimulating. Bracing. Bracing and invigorating. Bracing and invigorating. Invigorating and bracing. Bracing and not relaxing and depressing. Bracing and invigorating. Invigorating and bracing. Bracing, invigorating and delightful. From November to May this climate exerts a tonic influence on invalids. Climate from October to May, quite invigorating. Decidedly bracing and invigorating. Bracing. Bracing and invigorating.

I have given you the views of a climatic theorist, and the positively expressed opinions of the leading physicians of this State, and I need but remark that if the latter are believed, Dr. Jones has made erroneous statements, which are calculated to mislead and injure invalids, by diverting them from a *temperate, dry and bracing climate* to a locality where the "Ice King is"—where atmospheric changes are great, and where the mean relative humidity during the winter months is greater than that of Florida.

Dr. Jones informs us, in his "plea for cold climates" (and Minnesota in particular), "in the treatment of pulmonary consumption," that "to ascertain the opinion of the profession of this State [Minnesota] concerning the effects of climate upon phthisis, the Minnesota State Board of Health

recently sent out a circular, and received the following replies." Among the inquiries was the following :

Question VII. "What months are most favorable for immigration here?"

"Forty answers. Autumn, eight ; summer, twelve ; spring, five ; late spring and early fall, ten ; any month, two ; undecided, three."

It is remarkable that none recommended the winter months, more especially, as the object of the circular was to prove that Minnesota is, *par excellence*, the most suitable winter resort for invalids ; and more especially as Dr. Jones has asserted its superiority.

Desirous of ascertaining the views of our leading physicians, I included the following inquiry in my circular letter :

QUERY—What months are the most favorable to immigration to this State ?

ANSWERS.—All seasons. Fall and winter months. Winter months. October 1st to April 1st. September to March. October to May. Whenever one gets ready. Winter months. Fall and winter months. October. Fall and winter. Fall and winter months. October to April. Winter months. All seasons are equally favorable for invalids. October to June. Fall and winter months. Fall and winter months.

At page 296, Dr. Jones asserts "that it is difficult to understand the reason why the profession in this country still persists in sending their patients to Florida. That improvement should take place is against reason and experience alike. If we except a sandy soil, it does not possess a single element which is now regarded as favorable for the palliation or cure of phthisis." In Dr. Jones, we have a dogmatist, who writes about "reason and experience." His reasons are simply based on ignorance ; the assertion that "the atmosphere of the State is loaded with moisture," and "meteorological tables for the year 1878, for the city of St. Paul." He arrogantly censures the profession for sending their patients to Florida. This can be accounted for on the ground that many members of the profession are posted with regard to the climatic advantages of Florida, and that Dr. Jones is a resident of Minnesota. He speaks of "experience," of which he has not had jot or tittle. If he had resided in this State for but twelve months, he might have referred to his limited "experience ;" but when a non-resident refers to "experience," it is simply descending from the sublime to the ridiculous. He asserts that with the exception of a "sandy soil the State does not possess a single element which is now regarded as favorable for the

palliation and cure of phthisis." I have quoted from leading authorities regarding the climatic factors "necessary for the alleviation and cure of phthisis," and have discussed the factors of this climate, and have given meteorological data, and, in my opinion, there is but one conclusion to be arrived at, and that is that Dr. J. is a dogmatist, and one who is ready to assert as fact what he cannot establish by experience, testimony or reliable data.

In his essay, Dr. Jones uses the following language: "The mortality of St. Paul is less than that of Jacksonville." Questioning the correctness of this statement, I addressed a note to Dr. Jones, requesting him to favor me with the mortuary reports of St. Paul for the years 1878 and '79, with his authority for the statement regarding the mortality of Jacksonville, and that the atmosphere of Florida is "loaded with moisture." But received no reply.*

To condemn localities of low elevation, as well as those

* Since this paper was placed in the hands of the Publication Committee, I have received a communication from Dr. Jones, dated June 21st, in which he states:

"The mortality of Jacksonville, Florida, was found in some medical journal, or in the transactions of your State Medical Society. I cannot now remember which. I do remember, however, that the mortality from consumption in Jacksonville was greater than in St. Paul. I am well aware how *unreliable such information is*. The humidity of the atmosphere of Florida is so well understood, that to answer you as to where I received the information, it will only be necessary to point you to any work on climatology which has been written in this country. I doubt if you can overcome such overwhelming testimony on this point."

When authority for some of his statements is requested, the Doctor's memory is at fault, but as regards the mortality of Jacksonville, his memory is perfect. We feel justified in stating that the mortuary reports of the city of Jacksonville have not been published in any medical journal, or the transactions of the Florida Medical Association. If such "information is so unreliable," it is somewhat surprising that a medical gentleman should have hazarded a positive and denunciatory statement upon such "*unreliable information*."

As the authority for the mean relative humidity of this State is "so well understood," and as it can be found in "any work on climatology," it is surprising that Dr. Jones did not refer to some particular work, or quote one in his essay. The popular opinion that Florida possesses a "moist climate," is based on the fact that it is partially surrounded by water—or on a mere rehash of the statement which appeared in the earlier editions of the work of Dr. Napheys, previously referred to. The statement that the "atmosphere of Florida is loaded with moisture," is about as reliable as the statement that the "air of Minnesota is dry and desiccating." It is more easy for authors to quote and perpetuate errors, than to appeal to the Signal Service Department at Washington and secure reliable data.

situated near the sea coast, and to bolster up high altitudes, Dr. Jones quotes the following from Thoroughgood : "At Marseilles, the mortality from consumption is 25 per cent." Probably Marseilles is one of the most unhealthy towns on the Mediterranean, yet that recent and eminent authority, Dr. Sparks, informs us that the mortality from phthisis in that city is but 1 in 7.4. That in 1876, the garrison in Marseilles numbered 3,943 men ; that the mortality was 20 per 1,000, and but three died of phthisis. These figures do not support the authority quoted by Dr. Jones.

Mentone is situated on the Mediterranean, at a very low elevation, and is recommended by leading authorities as a climatic resort. Its climate, during the cold months, closely resembles that of Florida. During a period of twenty-five years, we find that 3,189 cases of all kinds were admitted into the hospital, and during that period only forty-five cases of phthisis—the ratio of phthisis to other diseases was as 1 to 75.5. To illustrate the influence of a temperate, bracing and dry climate in the treatment of phthisis, I shall quote from Sparks, p. 113 :

CASES OF PHTHISIS TREATED ON THE RIVIERA.

	Number pr. ct.
Cured or improved.....	1,208.....62.6
Stationary or worse	437.....22.6
Dead.....	284.....14.8
<hr/>	
Number of patients.....	1,929

Dr. Jones states, p. 280, that "late investigation seems to indicate that the comparative infrequency of phthisis among inhabitants residing in elevated regions, is due not so much to mere altitude as to the absence of organic matter in the atmosphere of these high elevations. It is now established beyond all doubt, that organic substances, whether gaseous products of putrefactive processes, microscopic germs floating in the atmosphere, when they reach the bronchial tubes in the inspired air, are capable of exerting morbid processes which lead to serious results. These deleterious organic substances, which are constantly inhaled in the lower strata of the atmosphere, are one of the strongest arguments against sending patients to Florida." The question naturally arises, has Dr. Jones, or any other competent observer, examined the air of Florida microscopically? We have not been favored with a visit from Ehrenburg, Tyndall, or Angus Smith, and Dr. Jones, without any authority or reason, condemns the atmosphere of this State, and endeavors to injure

Florida as a climatic resort, and as a place of permanent residence. Correctly speaking (as regards the surface of the earth), the atmosphere which surrounds St. Paul is no higher than that of Jacksonville, but the greater number of inhabitants and cesspools in the former, may cause more impurity of air than in the latter. If St. Paul was situated on an eminence 2,000 to 6,000 feet above the level of the adjoining country, Dr. Jones' organism theory would have a slight basis. According to the investigations of Ehrenburg and Sylvestrie, sand, earth and microscopic organic forms can be transported in the atmosphere for long distances. The air of Berlin has been found to contain organisms derived from the African desert. Independent of larger substances, the air is found to contain numerous living creatures, some lifted from the ground by winds, others growing in the air. Ehrenburg discovered over 200 forms. These can be dried, and retain their vitality for years. Minnesota is surrounded by other States where organisms do exist, and it requires but a few hours or days for the winds to carry objectionable substances from Illinois, Michigan, New York, Louisiana, or Florida to Minnesota. If Dr. Jones' theory regarding foreign substances in the air is correct, Florida is a more suitable place as a climatic resort than Minnesota. It is admitted by all scientists that foreign substances and minute organisms "are more abundant in land than sea air;" in fact, sea air is noted for its purity. Minnesota is surrounded by other States, and is favored by the winds with their impurities. Florida is nearly surrounded by the ocean, and as it is generally fanned by sea breezes, the air must be comparatively pure, and Dr. Jones' statement is untenable.*

* At p. 283, Dr. Jones asks the question: "Why is consumption so frequent in Florida?" At p. 289 he answers it, by stating: "It need scarcely be repeated, that this marine atmosphere is a fruitful source of mischief to consumptives, as indicated by the large death rate to those persons residing in situations where this influence is operative. It is not surprising that Florida should suffer from this scourge, when we remember that it is a peninsula, and therefore exposed on two sides to this oceanic influence." Florida does suffer from a scourge, but it is not phthisis—it suffers from adverse and unreliable statements of writers.

To establish his theory, he asserts, at p. 274, that "consumption is unknown in Iceland," and that "Sweden and Norway are almost exempt from this disease." He also cites Nova Scotia to prove his position. Iceland is surrounded on four sides by water. Sweden and Norway form a peninsula; Nova Scotia is a peninsula, and more nearly surrounded by water than Florida. The writer must possess

The entire gist of Dr. Jones' paper, is to prove that tropical climates are productive of phthisis; that they are unsuitable for the treatment of phthisis. "That the warm, moist climate of Florida acts as an internal poultice, softening the morbid mass" [tubercles], and thereby hastening the fatal end. "That the effects of a hot, humid atmosphere upon the skin, is either to entirely suppress cutaneous perspiration, or to reduce it to a minimum. Indisposition to exertion, either physical or mental, due in part to humidity, suppression of the insensible perspiration, and to heat, is a serious drawback to a patient's improvement. A certain amount of exercise in the open air is the *sine qua non* to the successful treatment of a patient with phthisis. Florida would be unfit for a patient to visit, for this reason if for no other." Dr. Jones' object is apparently to lead the public to believe that Florida is a "hot" and "humid" climate. But we have proven that the mean relative humidity of Florida for the entire year is but 1.7 per cent. above that of Minnesota; and during the cold months, it is 1.8 per cent. lower.

The statements of Dr. Jones will lead his readers to believe that Florida is always "hot," and that the sun is always vertical; but for the five cold months the mean temperature for this city is but 58.7—a close approach to the ideal climate recommended by standard authorities for the climatic treatment of patients during the winter months.*

a bad memory, and forget what he stated on p. 274, or else his geographical knowledge is defective. His geographical description of Florida establishes the fact that he is geographically ignorant of the State he denounces. He asserts that Florida is a peninsula. It possesses a peninsular, and a non-peninsular portion, and the latter is 300 miles long.

* Dr. Jones asserts that Florida is "hot," and by this expression his readers are led to believe that Minnesota is cool during the summer months. To illustrate the meteorology of St. Paul, he introduces tables for the year 1878, and, for purposes of comparison, we shall use data for the same year.

Maximum temperature for the hot months for year 1878:

	JUNE.	JULY.	AUGUST.	SEPT.	MEAN.
St. Paul, Minn.....	87°	96°	94 °	94°	92.7°
Punta Rassa, Fla.....	92	91	92	90	90.1
Key West, Fla.....	94	93	94	92	93.2
Jacksonville, Fla.....	96	97	98.5	92	95.9

From these data it will be seen that the mean of maximum tem-

In this connection, I cannot refrain from quoting the statement of the eminent Prof. Reuhle, of Bonn: "The investigations of Heirsh, have shown that neither the geographical position, nor the temperature of a region have anything to do with the prevalence of consumption. There are regions in all zones which are free from this disease, and, on the other hand, there is no zone in which it is not very prevalent. While it is very rare in Iceland, in the island of Marstrand, on the steppes of Kerghis, in the interior of Egypt, on the Plateaus of Mexico, Costa Rica, in Peru, and in the interior of South Africa, it is, on the other hand, very common in Sweden, as well as in India and Siberia, as well as in Australia and South America." Referring to the causes, a moist atmosphere, currents of air, and certain winds, he remarks: "Nothing is known regarding *modus operandi* of these causes, except that they produce catarrhal and inflammatory respiratory diseases, which may become the starting point of consumption, and that they are apt to induce a rapid increase when this affection already exists." I have quoted from the paper of Dr. Jones, and the views of an eminent Professor—a man who was considered worthy to be appointed the successor of Prof. Neumayer.

At page 297, Dr. Jones states: "That it is during the first stage of consumption that invalids derive so much benefit from a visit to Minnesota. I cannot insist too strongly upon the inutility of sending phthisical patients to this State who are in the advanced stages of the disease. It is my belief that when the stage of ulceration and excavation has been reached, this climate will do harm."

Here we have the authority of a distinguished resident of Minnesota, that the climate of that State is injurious after softening has commenced, and as he condemns Southern California, Colorado, Florida, and Mediterranean climatic resorts, there is nothing left for a patient, after tubercles have commenced softening, but to give up all hope and "set his house in order." We opine, that if Dr. Jones would visit Florida, and inhale our "dry, bracing and invigorating

peratures for Punta Rassa, for year 1878, was 2.6 deg. below St. Paul, and that the mean of three stations in this State exceeded that of St. Paul by *three-tenths of one degree*. But he neglects to inform his readers that the nights in Florida are cooler and more invigorating than in the North and West, and that the days are longer in the North than in Florida, and that the rays of the sun in the North are longer concentrated on the earth's surface, with a proportionately shorter night for cooling by radiation.

air," and question some of our oldest and most experienced physicians, he would advise invalids to visit Florida in preference to Minnesota.

I must apologize for occupying so much of your time with the assertions of Dr. Jones. But if his views of Florida are correct, they should have world-wide publicity, for thereby thousands of invalids will be benefited. If his statements are incorrect, common humanity and justice to this State, demand that they should be exposed, as they are calculated to mislead those who are suffering from a disease which annually destroys a large portion of the human family. My remarks are not intended to injure Minnesota, but to correct the statements of Dr. Jones, published in a Medical Journal, and reprinted in pamphlet form for general distribution. His statements have been widely circulated, and if erroneous, they should be contradicted.*

Other localities in this State may present greater climatic advantages and attractions than Jacksonville as a winter resort; yet, as it is the metropolis and objective and distributing point of the State, and as definite and reliable data can be obtained regarding its meteorology, diseases and mortality, I shall offer no apology for making a special reference to it.

It possesses a large number of hotels, many of them in appointments, home comforts, and cuisine equal those of Northern cities. The boarding-houses are numerous and comfortable, and in some, the tables are supplied with every necessary and luxury. Some benevolent ladies have erected a large and well arranged brick hospital, where invalids can obtain the comforts of a home on reasonable terms. The river St. Johns affords every facility for rowing and sailing, and daily steamboat excursions are made in various directions. Through the medium of steamships, steamboats and railroads, any portion of the State can be cheaply and comfortably reached. Owing to the location of this city (a few miles from the ocean), the easterly winds have to pass over the land and are robbed of their saline particles, harshness and stimulating effects upon the irritable mucous membranes of the air passages. Sources of amusement are numerous, and the invalid can find means of diverting his

*I opened a correspondence with Dr. Jones, and in my last communication, mailed several weeks since, I enclosed reliable and official tables illustrating the mean relative humidity of Minnesota and Florida, and pointedly asked the gentleman if he had not "misrepresented the climate of Florida with regard to humidity." Up to to-day (Aug. 27th), I have not been favored with a reply.

attention from his ailments. The mean relative humidity of any winter resort is an important factor, and with regard to atmospheric humidity, this city has been grossly misrepresented.

To correct prevailing errors, which have been industriously propagated by ignorant or interested parties, we shall present the following report, kindly furnished by J. W. Smith, the intelligent observer in charge of the Signal Station in this city :

MEAN RELATIVE HUMIDITY OF JACKSONVILLE,
FLORIDA.

Years.	November.	December.	January.	February.	March.	Mean for 5 months.	Annual mean	
	per ct.	per ct.	per ct.	per ct.	per ct.	per ct.	year.	pr ct.
1875, '76.....	78.9	71.1	67.8	70.4	60.2	69.7	1875	70.3
1876, '77.....	68.2	64.5	73.6	69.0	63.5	67.8	1876	67.2
1877, '78.....	71.8	70.0	67.8	68.5	66.4	68.9	1877	69.3
1878, '79.....	70.0	66.3	65.0	65.0	66.0	66.5	1878	68.7
1879, '80.....	70.5	74.6	77.1	69.4	63.7	71.1	1879	69.7
Mean for 5 years.....	71.9	69.3	70.3	68.4	63.9	68.8		69.0

Thus, you will perceive that Jacksonville possesses a lower mean relative humidity than most of the celebrated winter resorts. There is one important point to which I wish to direct your attention, and that is the remarkably low percentage of humidity during the much dreaded month of March—the mean for five years being but 63.9, as against 73.3 at Mentone, 76.8 at Atlantic City, 79.5 at Breckenridge, Minn., 68.4 at Nassau, N. P., and 67.1 at St. Paul. When referring to the effects of change of climate, Dr. Madden remarks : “The temperature of a locality, to which so much importance is popularly assigned, is no criterion of its climate as a health resort, the fact being, that invalids are painfully sensible of variations in the *hygrometric state of the atmosphere*, which are in no way indicated by the thermometer, so much relied on.”

The thermometric range in this city is not too high nor too low. As evidence of this, we find the mean temperature for the five cold months, for five years, to be, for November, 62.1 deg.; December, 55.8 deg.; January, 56.2 deg.; February, 56.9 deg.; March, 62.7 deg.; mean for five months, 58.7 deg.

Dr. Lente, p. 17, when discussing temperature as a constituent of climate, and referring to certain winter resorts north of Florida, remarks: "A mean winter temperature of about 48 deg. is too low to *entice* many of the feeble invalids out of doors, except in calm and sunshiny weather. But in some of them, this degree of cold is enhanced, as far as the sensations are concerned, by the winds, which frequently prevail. At such times, most invalids will, therefore, be found hovering over the comfortable wood fires, and will be pretty sure to keep all the apertures of their chambers closed at night, thus depriving themselves, during by far the greater part of the twenty-four hours, of the principal means of cure. In Florida, the sun shines so brightly, the air is so balmy, the songs of the birds so enlivening, and the orange trees in their bloom, or laden with their golden fruit, lend such a charm to the outlook from the windows, that the most indolent or the most cold-blooded invalid feels little inclined to stay indoors."

Prof. J. Hughes Bennett, of the University of Edinburgh, remarks; "And when, in our own country, the question arises: Where shall we send the consumptive patient in order to avoid our changeable climate and cold winter winds in winter? we naturally say: To a land where, during that portion of the year, the weather is warm and equable. Much has been written on climate, but the one which appears to me best, is that which will enable the phthisical patient to pass a few hours every day in the open air, without exposure to cold or the vicissitudes of temperature on the one hand, or excessive heat on the other.*"

With the exception of the month of December, fogs are seldom seen, and when they do occur, they are not dense, and disappear as soon as the sun appears above the horizon. Interested parties have intimated that the city of Jacksonville is a "rainy locality," and, in consequence, an "unsuitable place for invalids." To correct this error, we will furnish data applicable to a few winter resorts, from reliable sources:

* Bennett's Practice of Medicine, pp. 326, 476.

RAIN-FALL IN INCHES AND HUNDREDTHS.

	Number of years.	November.	December.	January.	February.	March.	Five months.
Nice.....	28	5.11	4.12	3.06	1.68	2.89	16.86
Mentone.....	9	5.34	3.15	1.70	2.18	4.13	16.50
Nervi.....	7	6.00	4.88	4.78	23.3	4.49	23.40
Genoa.....	29	7.61	4.86	4.39	4.27	3.59	24.72
Atlantic City, N. J.....	5	4.61	3.60	2.76	2.10	3.86	16.93
Augusta, Ga.....	5	4.56	3.09	3.70	3.64	5.65	20.64
Jacksonville, Fla.....	5	3.02	3.38	2.34	5.14	2.84	16.62
Key West, Fla.....	5	2.43	1.33	2.18	2.22	0.94	9.10
Punta Rassa, Fla.....	5	2.38	0.99	1.69	2.67	1.04	8.77

We have referred to sunshine as an important aid in the treatment of disease and broken health, and as an evidence that Florida is favored with sunshine and fair weather, and not "cloudy, foggy and rainy weather," as interested parties have asserted, I shall direct your attention to the following meteorological data, furnished by J. W. Smith, the Observer in charge of this station :

METEOROLOGICAL DATA FROM SIGNAL OFFICE U. S. A.,
JACKSONVILLE, FLA.

Date.	Rainy days.					Remarks.
	Nov.	Dec.	Jan.	Feb.	M'ch.	
1874—1875	14	6	15	10	5	"Rainy days," all days on which rain fell.
1875—1876	10	4	4	8	7	
1876—1877	5	10	6	6	6	
1877—1878	9	9	5	10	8	
1878—1879	5	8	5	9	3	
Average	8.6	7.4	7.	8.6	5.8	37.4 days in 5 months
	Cloudy days.					
	Nov.	Dec.	Jan.	Feb.	M'ch.	
1874—1875	4	6	12	3	8	
1875—1876	8	4	5	7	2	
1876—1877	6	3	2	10	7	
1877—1878	10	11	11	9	10	
1878—1879	9	11	5	11	4	
Average.	7.4	7.	7.	8.	6.2	35.6 cloudy days 5 ms

J. W. SMITH, Observer in charge.

When a day is marked "rainy," but a few drops may have fallen, and it is no evidence that the entire day was rainy. A measurable or a non-measurable quantity may fall in a few minutes, and the remainder of the day be bright and clear. In Florida, the rains are frequently "torrential in short severe bursts," followed by bright and clear weather. For the purposes of comparison, we will refer to the number of rainy days during the cold months in Jacksonville, Mentone, and St. Paul.

RAINY DAYS (INCLUDING SNOW.)

Locality.	Years.	November.	December.	January.	February.	March.	5 months.
Jacksonville.....	5	8.6	7.4	7.	8.6	5.8	37.4
Mentone.....	8	10.1	7.25	5.1	5.66	9.55	37.48
St. Paul.....	1	4.	13.	8.	6.	11.	42.*

This city is built on a sand bank, where the drainage is perfect. In many situations, wells have to be sunk through sand to a depth of from fifteen to twenty-two feet before a supply of water is obtained. Great attention is paid to sanitation, and in this respect Jacksonville is not excelled or equalled by any city in the South. Dry-earth closets have been enforced by ordinance. Recently the city has been effectively sewered, by the laying of drain pipes in the streets to carry off storm water and sewage. Water works of the most perfect description have been constructed at a large outlay. No layer of clay is found between the surface and the permanent water supply, and as a result, the soil is dry and warm. The sandy soil upon which the city is built, contains but a minimum amount of vegetable matter, and, as a consequence, health is the rule. To illustrate the mortality of this city, I appealed to our efficient and intelligent Health Officer, Dr. Knight, and received the following communication :

HEALTH DEPARTMENT CITY OF JACKSONVILLE,

April 10, 1880.

Dr. C. J. Kenworthy:

DEAR SIR: A careful examination of the Mortuary Reports in the City Sexton's office, reveals the following facts :

* Dr. Jones, N. Y. Med. Jour., 1879, p. 237.

Previous to 1878, the records were imperfectly kept and are not reliable.

Mortality for 1878.....	119
Mortality for 1879.....	171

Mortality for two years.....	290
Deduct from this number visitors who died of phthisis, bright's disease and organic disease of the heart.....	40
Total mortality of residents.....	250
Percentage of mortality among residents for two years, per 1,000..	12.5
Percentage of deaths from phthisis among residents, per 1,000...	0.55
Percentage of deaths from pulmonary diseases, other than phthisis, per 1,000.....	1.4

Respectfully yours,

A. W. KNIGHT, M. D., Health Officer.*

*As this paper is going through the press, I deem it advisable to refer to the mortality of Florida and Minnesota. At p. 277, Dr. Jones asserts that "Florida, which has been so much vaunted as a sanitarium for invalids, shows a greater ratio of mortality from phthisis to-day than Minnesota." At the time this statement was written, figures were not available upon which a statement of this description could be based.

To confirm or disprove the statement of Dr. Jones, regarding the mortality of Florida and Minnesota, I had a compilation of the census returns made by a competent person; and a friend favored me with a compendium of the Vital Statistics of Minnesota for the year 1879. I will append the data and allow the public to form an unbiased opinion.

FLORIDA.

Mortality per 1,000 from all causes.....	9.2
Deaths per 1,000 from consumption, including invalid visitors..	0.60
Deaths per 1,000 from consumption, excluding visitors who came to the State in the last and an incurable stage of this disease.....	0.44
Deaths per 1,000 from pulmonary diseases, other than consumption.....	0.50
Deaths per 1,000 among residents from pulmonary diseases, including consumption.....	0.94
There was one death from consumption, including visitors, to 15.2 from all causes.	
There was one death from consumption among residents, to 18.2 from all causes.	
There was one death from pulmonary diseases, to 8.2 from all causes.	

MINNESOTA.

Mortality per 1,000 from all causes.....	11.2
Mortality per 1,000 from consumption.....	1.12
Mortality per 1,000 from pulmonary diseases, other than consumption.....	0.65
Deaths per 1,000 from all pulmonary diseases.....	1.77
There was one death from consumption to ten from all causes.	
There was one death from pulmonary diseases to six from all causes.	
It is gratifying to find that the mortality of Minnesota is so low; and that Florida "to-day" holds the prominent position for salubrity that she did in 1860 and 1870.	

Since this paper was printed, the semi-monthly Mortuary Report of the city of Jacksonville has been published by Dr. Knight, and we find that the

Death rate of the first six months of the present year was, per 1,000.....	10.6
Deduct from total deaths 87 non-residents, who died of phthisis and chronic heart disease, and the actual mortality among residents was.....	6.9
Deaths from consumption among residents.....	0.

During the years '78 and '79, the mortality from phthisis among residents was surprisingly low—0.55—a fraction over one-half of one per cent. per 1,000, and for the first six months of 1880, not a death occurred among the resident population from consumption. Dr. Jones' statements regarding the great mortality from phthisis in this State, more especially among "old families, that have resided in the State for generations," is not sustained by the above reliable data.

It is gratifying to find that the mortality from phthisis and other pulmonary diseases is so low, more especially as it has been denounced as an unsuitable climate for the treatment of such cases, and the public led to believe that phthisis is of frequent occurrence here. If the mortality from these diseases is so light, it is evident that the climate must be favorable for invalids suffering from such affections. To illustrate the mortality of a number of cities, we shall quote from the Annual Health Report from the city of Yonkers, for 1879, "showing the vital statistics of American cities for the year 1879 :"

CITIES.	RATE PER 1,000.	CITIES.	RATE PER 1,000.
New York, N. Y.....	24.93	Wilmington, Del.....	21.02
Brooklyn, N. Y.....	20.15	District of Columbia.....	26.58
Buffalo, N. Y.....	14.19	Richmond, Va.....	18.40
Rochester, N. Y.....	16.24	Norfolk, Va.....	21.91
Yonkers, N. Y.....	14.16	Milwaukee, Wis.....	14.35
Plattsburgh, N. Y.....	25.00	Cincinnati, O.....	17.23
Newburgh, N. Y.....	17.30	Cleveland, O.....	16.72
Boston, Mass.....	21.53	Baltimore, Md.....	21.53
Worcester, Mass.....	19.25	Evansville, Ind.....	19.52
Cambridge, Mass.....	19.67	Chicago, Ill.....	16.50
Lynn, Mass.....	18.63	St. Louis, Mo.....	12.00
Newburyport, Mass.....	17.11	Salt Lake City.....	14.00
Concord, N. H.....	13.20	San Francisco, Cal.....	15.80
Burlington, Vt.....	10.68	New Orleans, La.....	50.17
Hudson county, N. J.....	20.08	Mobile, Ala.....	23.05
New Haven, Conn.....	17.99	Savannah, Ga.....	30.25
Hartford, Conn.....	16.67	Charleston, S. C.....	29.16
Providence, R. I.....	19.89	Nashville, Tenn.....	23.11
Philadelphia, Pa.....	17.96	Jacksonville, Fla.....	12.5*
Pittsburgh, Pa.....	21.16		

To illustrate the mortality from phthisis in a few cities, we shall quote from Copeland's Dictionary of Practical Medicine :

In Berlin, there was 1 death from phthisis to 5.7 deaths from all causes ; in London, 1 to 6.2 ; Paris, 1 to 5.5 ; Hamburg, 1 to 4.6 ; Stuttgart, 1 to 4.7 ; New York, 1 to 5.0 ; Philadelphia, 1 to 7.7 ; Baltimore, 1 to 6.7 ; Boston, 1 to 5.9 ; Florence, 1 to 11.5 ; Jacksonville,* including invalid visitors, 1 to 0.44 ; in Jacksonville there was one death from phthisis among residents to 0.10, and for the first six months of this year, not a death among residents.

As a result of having expressed myself so positively regarding the influence of climate in the treatment of disease, you must not conclude that I am disposed to ignore the use of drugs and rational medication. How often do we see invalids at a health resort deluding themselves with the idea that climate alone will effect a cure. In some cases, patients are ordered to a winter resort without any instructions for their guidance, save to "throw physic to the dogs." When patients reach a climatic resort, they fancy themselves released from the observance of medical rules, which are as necessary at health resorts as at their homes. They do not seem to realize the fact that they are invalids, and that they have left homes and friends to regain their health, but they thoughtlessly expose themselves, indulge their appetites, and are guilty of many imprudent acts. Through their own waywardness and imprudence, they aggravate disease, and the climate is censured. The invalid who seeks climatic change for the relief of his disease, should remember the old Salernitan precept :

*" Si tibi deficient medici, medici tibi fiant,
Hæc tria, mens laeta, requires moderata diæta."*

Much may be done by physicians at climatic resorts to aid patients in regaining their health, when suffering from phthisis, in the way of regulating exercise and bathing, recommending suitable points for residence, restoring the tone of the digestive organs, directing the quantity and quality of food, relieving cough and myalgia, arresting night sweats, hæmoptysis, and diarrhoea, the treatment of diathetic states, and last, though not least, the improvement of nutrition.

In this State, we have favorable climatic factors to aid in the cure of disease, and it rests with you, gentlemen, to

* Report of Dr. Knight, Health Officer.

maintain and guard the good reputation of the "American Italy"—to keep pace with the rapid strides of pulmonary diagnosis, pathology and therapeutics, so that those who are intrusted to your care, may receive the benefits of enlightened and rational treatment.

Facility of access of a health resort is a matter of great importance. It is obvious that a patient should be sent to a locality which can be reached by an easy journey, and in case of need, communicate with home and be reached by friends. In this respect our favored State possesses many advantages. It can be easily and rapidly reached from the North and West by through trains and sleeping-cars, and from Boston, New York, Philadelphia, Baltimore and New Orleans, by fast, staunch and palatial steamships.

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